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THE ANNUAL REPORT

OF THE

MEDICAL AND HEALTH DEPARTMENTS,
KEDAH AND PERLIS.

FOR THE YEAR

1347 A.H.

(20TH JUNE, 1928 TO 8TH JUNE, 1929 A.D.)

BY

DR. D. BRIDGES,

STATE SURGEON TO THE KEDAH GOVERNMENT.

Alor Star :

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For The Year Ending 29th Zulhijjah, 1347 A.H.

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I. ADMINISTRATION.

The principal appointments are:—

The State Surgeon.

- 1 Health Officer—stationed in Central Kedah.
- 3 Medical Officers—one in each centre.
- 1 Lady Medical Officer—stationed at Alor Star.
- 7 Assistant Surgeons.
- 2 European Nursing Sisters stationed at Alor Star.
- 58 Dressers (including 5 Laboratory Assistants).
- 1 Dispenser Store Keeper.
- 2 Asiatic Nurses.
- 7 Midwives.
- 4 Vaccinators.
- 4 Health Inspectors (attached to Health Office).
- 13 Health Inspectors (attached to Sanitary Boards).

Changes in the Staff during the year :—

Dr. D. Bridges, State Surgeon, was on vacation leave from 19-11-28 to 19-5-29 (5-6-47 to 9-12-47). Dr. J. I. Baeza, Health Officer, acted as State Surgeon during Dr. Bridges' leave, and Dr. H. B. Dodds was seconded from the Straits Settlements to act for Dr. J. I. Baeza as Health Officer, Kedah.

Dr. A. S. M. Douglas, Medical Officer, South Kedah, retired on 9-4-29 (28-10-47) on the expiration of his three years' agreement, and Dr. R. Walkingshaw from the Straits Settlements took his place on 4-4-29 (23-10-47).

Dr. J. S. E. Manley, Medical Officer, Central Kedah, proceeded on furlough on 18-5-29 (8-12-47). Dr. R. Walkingshaw was transferred from South Kedah to succeed Dr. Manley in Central Kedah; and Dr. H. B. Dodds, acting Health Officer, was posted to South Kedah as Medical Officer.

Dr. (Miss) C. B. Kibble, Lady Medical Officer, proceeded on furlough on 28-2-29 (18-9-47). She was succeeded by Dr. (Mrs.) K. M. Isaac from the Federated Malay States.

Nursing Sister Miss M. K. O'Shea retired on the expiration of her agreement on 28-7-28 (9-2-47) and was succeeded by Miss R. E. Alcock from the Straits.

Assistant Surgeon M. C. Varghese was appointed on 24-9-47 (6-3-29).

- 1 Probationer Dresser and 2 Dressers Grade III were appointed.
- 4 Asiatic Nurses were appointed and 2 resigned.
- 1 Dresser Probationer resigned, and 1 Dresser, Special Grade, was retired on pension.
- 3 Probationer Health Inspectors were appointed and 1 Probationer was transferred to the clerical service.
- 1 Health Inspector Grade II was selected, after a competitive examination, to attend the Royal Sanitary Institute course, Singapore, on 18-11-47 (28-4-29).

Results of Examinations.

Two examinations of Dressers and Health Inspectors were held during the year.

	No. Candidates.	Results.
Dressers (Moharram: June, 1928) ..	2 Grade I	1 passed 1 failed
	4 „ II	1 passed 3 failed
	12 „ III	2 passed 10 failed
„ (Rejab: December, 1928) ..	2 „ I	2 failed
	2 „ II	2 failed
	11 „ III	3 passed 8 failed
Health Inspectors (Moharram) ..	2 Grade I	1 passed 1 failed
	1 „ II	1 passed
„ (Rejab) ..	1 „ I	1 passed
	1 „ II	1 passed
	2 Probationers	1 passed 1 failed

The candidates for Dressers' Examination, include 18 dressers from Estates, of whom only 3 passed. The percentage of passes was 21.21.

The percentage of passes was poor. This was I think possibly due to changes of Medical Officers, who are supposed to give lectures to Dressers. The lectures, I regret to say were not regularly given. The trouble is that it means overtime work for the Medical Officers who petitioned some time ago for an allowance without success. I am bringing up this question again, as without lectures, it is practically impossible to get good results.

POPULATION.

The estimated population of Kedah according to races is: Malays 279,000, Chinese 66,630, Indians 50,340, Europeans 400, Eurasians 160, Others 9,100. Total 405,630. Appendix A gives details for the last 10 years.

There was an increase in the number of births over the previous year's figures of 2,281, and the birth rate of 37.83 per mille is the highest on record.

The death rate of 23.57 per mille against 28.57 is the lowest for 5 years.

Appendices B—H give details of births and deaths, and Appendix I shows the principal causes of death.

The years 1345 and 1346 were very unhealthy, the incidence of malaria fever being very high. This, I think, was general throughout Malaya.

Districts.

For administrative purposes the State is divided into three Districts—namely, North, Central, and South Kedah. The enclosed map shews the boundaries of the various Districts.

North Kedah has an area of 1,549 square miles with an approximate population of 208,180. This area is mostly flat rice (paddy) planting land. The majority of the population is Malay.

Central Kedah has an area of 1,546 square miles with a population of 130,540.

South Kedah has an area of 553 square miles with a population of 66,930.

The last two districts are largely composed of Rubber land and a large proportion of the population is Indian.

Medical Institutions.

NORTH KEDAH (adjoining South Siam).

Hospital, Alor Star	..	..	..	364 beds
„ Langkawi	..	..	..	50 „
Outdoor Dispensary, Alor Star Town.				
„ Changloon.				

CENTRAL KEDAH.

Hospital, Sungei Patani	..	..	..	400 beds
„ Kuala Ketil	..	..	..	150 „
„ Baling	..	..	..	28 „
Outdoor Dispensary, Sik.				
„ Yen.				

SOUTH KEDAH.

Hospital, Kulim	..	..	..	260 beds
„ Serdang	..	..	..	80 „
„ Bandar Bahru	..	..	..	40 „

The prisons at Alor Star, Sungei Patani and Kulim, the centres of the respective Districts, have each a sick ward.

Three ambulance dispensaries were working throughout the year, one each in North, Central, and South Kedah.

The District Hospital at Bandar Bharu was closed at the end of Shawal (10th month of Malay year) and an outdoor dispensary was opened in its place. This was done as the Hospital practically served only a few Estates in the District, and it was arranged for the patients from these estates to be sent to Serdang Hospital which is easily managed, the distance being only a few miles.

The whole route is covered once a week by the travelling dispensaries and all the schools and villages on the way are visited and patients attended to.

Buildings.

The Quarantine Camp at Padang Besar was completed.

The Maternity Wards at Alor Star and Sungei Patani were extended. There are now 2nd and 3rd class Maternity Wards in both these centres. Quarters for four clerks were completed and occupied at Alor Star.

Financial.

REVENUE (Medical). The total Revenue collected during the year was \$92,500.83 against \$113,282.35 in 1346 A.H., a decrease of \$20,781.52.

EXPENDITURE (Medical).	1346.	1347.
Salaries and allowances	.. \$175,568.23	\$183,837.20
Other Charges	.. 232,655.07	268,019.89
Total	.. \$408,223.30	\$451,857.09

REVENUE (Health). \$57.00 against \$48.00 during the previous year. This is in respect of Births and Deaths certificates only.

EXPENDITURE (Health).	1346.	1347.
Salaries and allowances	.. 20,382.59	\$21,356.80*
Other Charges	.. 10,343.71	17,431.99
Total	.. \$30,726.30	\$38,788.79

* Does not include Clerical Service \$1,821.50

The decrease in the Medical revenue is accounted for by the fact that there was a great fall in the number of admissions of paying patients from Estates. Only 5,323 were admitted against 8,570 during the previous year, decrease of 37.89 per centum.

The decrease in number of Estate patients is on account of the general improvement of health in the State, also largely due to the fact that, last year, most of the Estates discharged all their sickly coolies to reduce expenses when restriction was taken off rubber.

Proportion of Medical and Health Expenditure of the total revenue of the State:—

Deducting the revenue from the expenditure of the Medical Branch, the net expenditure was \$359,356.26, which represents 5.22 per cent of the total revenue of the State.

The net expenditure of the Health Branch represents .59 per cent of the State revenue.

The total expenditure of both branches was 5.81 per cent of the total revenue of Kedah.

This is slight improvement on last year's figure, and shews that the Authorities are realizing the importance of health in the advancement of the State.

Ordinances.

The Sanitary Board Enactment was amended, to give power to the various Sanitary Boards for passing by-laws, subject to the approval of the State Council.

The Health Board Enactment was also amended, new sections being added to define the powers of the Board as regards collection of cess, borrowing and lending out money for the carrying out of health schemes on Estates, and taking legal action when required.

The Calendar.

One of the great drawbacks in this Department is that certain returns asked for by the Home Authorities are made out, naturally, according to the Christian Calendar, and other returns are made out according to the Mohammedan Calendar. The result is, as there is a difference in the number of days in the respective years, there is likely to be a difference of figures. Also the working out of returns from one Calendar to another for the report is troublesome, and mistakes are liable to occur.

There is no reason why all the Medical returns and reports should not be put up according to Christian Calendar, as from a scientific point of view they hardly concern the Kedah Government, and the people whom they do concern follow the Christian Calendar and therefore must find it difficult to follow the reports according to Mohammedan Calendar. This matter has been referred to Government.

II. PUBLIC HEALTH.

The health of the State generally has been very good. The Birth rate of 37.83 per mille is the highest yet recorded, while the Death rate of 23.57 per mille is very appreciably lower than the rate of 1346, (28.57) and is in fact the lowest for 5 years. Thus the natural increase of population is, very nearly, 3 times that of 1346. Appendices B to H give details of births and deaths and Appendix I shows the main causes of deaths in 1347.

Communicable Diseases.

Malaria.

As is usual, "Malaria" and "Fever unspecified" account for the largest portion of the total deaths, but together continue to show a reduction on the two previous years—the figures for 1345, 1346, and 1347, being respectively, 4,820, 4,283, and 3,328.

The commencing rise in the curve of the malarial seasonal incidence was much the same as last year, but whereas the peak occurred at the commencement of May in 1927, the 1928 peak was not reached till July.

The Malarial season was the mildest recorded.

Cholera.

No cases were recorded, although a number of visits were paid by the Health Officer to investigate cases which were under suspicion.

Small Pox.

No cases.

Tropical Typhus.

In 1346, 3 cases were reported for the first time in Kedah. They were two European Assistants on Dublin Estate, South Kedah, and one Malay from Yen, North Kedah.

In 1347, one case (Indian) occurred on the same Estate.

As in the previous cases, the diagnosis was confirmed by serological tests, carried out by the Medical Research Institute, Kuala Lumpur.

Ankylostomiasis.

The deaths registered under this heading still continue to be high—964, as compared with 1,154 in 1346. As stated in the 1346 report, it is difficult to exclude malaria as being a contributory cause of death in many of these cases.

Nearly all European Estates in Kedah are now regarding this disease seriously and it is hoped that fewer and fewer deaths will, in future, be registered under this heading.

Chicken Pox and Measles.

Small outbreaks, of little consequence occurred from time to time, throughout the year. Appendix I gives details of infectious diseases.

Infant Mortality.

This was 127.91 per mille being the lowest recorded, if the year 1342 be excluded, when it reached 126.27. The highest rate is as usual amongst the Tamils—262.96 per 1,000 Tamil births. This is however, a very considerable improvement on previous years, the figure for 1346 being 406.34.

The rate for Chinese is exactly the same as last year, 136.72, while that for Malays is 111.95 against 128.46 for 1346.

Officials.

The following table gives the Health Statistics of Government Officials (other than Subordinates) in Kedah.

	European	Native.
The number of officials resident	74	68
Average number resident	51.19	62.43
Total number on sick list	17	22
Total number of days on sick list	149	171
Average daily number on sick list .. .. .	.42	.48
Percentage of sick to average number resident	33.21	35.24
Average number of days on sick list for each patient	8.77	7.77
Average sick time to each patient	2.91	2.75
Total number invalided	1	..
Percentage of invalidings to total residents	1.35	..
Total deaths .. .. .	..	..
Percentage of deaths to total residents .. .. .	..	..
Percentage of deaths to average number residents .. .. .	..	..
Number of cases of sickness contracted away from residence .. .. .	..	..

III. HYGIENE AND SANITATION.

During 1346, there were very few European Estates that were not carrying out active anti-malarial measures, either in the form of permanent drainage work or temporary oiling, or arsenic-spraying measures.

It was during 1346 also that the Kedah Health Board started to function. During the year under review, this Board, apart from concerning itself with estates hospital organisation, has taken an active interest in malaria prevention, and, as a result, malaria prevention work has undoubtedly been increased, and is carried out now by some of the larger native owned estates; and it is hoped that in the near future, improvement will be effected by further extending preventive measures, to all estate property throughout the State. *Pari passu* with this, there has been also noticeable improvement in estate sanitation.

It is regrettable that the same cannot be said of most of the areas under the control of Sanitary Boards. In the towns of Sungei Patani, Alor Star, and Kulim, and also at the frontier post, Bukit Kayu Hitam, monthly larval surveys are made. These have greatly assisted in controlling the mosquito problem.

In order that this work should not be interrupted, a larva catcher was appointed as from 1st Moharram, 1347.

The Anti-malarial Board held two meetings during the year.

Vaccinations.

The number of vaccinations done during the year was as follows:—

District.				No. Vaccinated.		
Kota Star	}	North Kedah	..	8,847
Kubang Pasu	..	..		
Padang Trap	..	..		
Langkawi	..	..		
Kuala Muda	}	Central Kedah	..	3,336
Yen	..	..		
Baling	..	..		
Sik	..	..		
Kulim	}	South Kedah	..	2,504
Bandar Bahru	..	..		
				Total	..	<u>14,687</u>

9,307 of these were done by Dressers in Hospitals and Dispensaries, and the rest by vaccinators. The cost per head of vaccinations done by vaccinators was 21 cents.

Schools.

40 schools were visited by the Health Staff. This represents a total of 3,725 pupils of which 3,008 were examined. 31 schools were regularly visited by the Travelling Dispensaries.

The prevailing conditions found are shewn in appendix K.

Visits to Estates.

Both Native and European owned estates were visited by the Health Officer and Health Office Staff—377 visits in all were paid.

The usual estate figures are shown in appendices L to R.

Quarantine Inspection at Padang Besar.

As a result of a cholera outbreak, Bangkok, Siam, was declared suspected on the 12-7-47.

As the number of cases exceeded 25 per week, it was necessary to declare Bangkok infected as from 23-11-47.

Passengers entering Kedah were required to sign undertakings to report themselves to the Health Authority of the District to which they were travelling.

Exceptions were made in the case of passengers holding certificates of recent inoculation.

It was found that a very large percentage of passengers of all classes failed to carry out the conditions of their undertakings, and so it was necessary to enforce a deposit system of \$25 per head on 26-12-47 (5-6-29).

The numbers of passengers examined at the railway frontier station for the year were as follows:—

1st Class	..	..	..	..	2,585
2nd „	..	..	..	..	4,807
3rd „	..	..	..	..	34,170
Total ..					<u>41,562</u>

The Quarantine Camp at Padang Besar was completed during the year.

IV. MATERNITY AND CHILD WELFARE.

Dr. (Miss) C. B. Kibble, Lady Medical Officer, proceeded on furlough on 28-2-29 (18-9-47). Dr. (Mrs.) K. M. Isaac from the F. M. S. succeeded her.

Dr. (Mrs.) K. M. Isaac unfortunately was unable to do much work, as she suffered from continual attacks of malaria which she contracted in Selangor.

The following figures shew the work done by this department during the year.

1. Maternity Cases (Indoor)—Hospital, Alor Star.

	Cases	Deaths.
Normal labour	63	..
Difficult labour	14	4
Still birth	1	..
Premature Births	9	6
Abortion	10	..
Puerperal Sepsis	9	2
Other affections connected with pregnancy	23	2
Total ..	<u>129</u>	<u>14</u>

2. Maternity Cases (Outdoor).

Normal labour	93
Premature births	4
Still birth	3
Abortion	1
Total ..	<u>101</u>

3. Out-patient Work (other than Maternity cases).

The following table shows the number of out-patients treated by Nationality:—

	Europeans	Malays	Chinese	Indians	Others	Total
Hospital, Alor Star ...	14	217	154	143	24	552
Town Dispensary, A. Star	105	444	215	25	789
Kodiang	3	...	...	...	3
Kuala Nerang	14	6	13	...	33
Pendang	69	13	...	...	82
Yen	61	1	1	23	86
Lepai	26	...	...	...	26
Tokai	11	...	...	...	11
Changloon	3	...	1	...	4
Total ...	14	509	618	373	72	1,586

Injectons for Puru numbered 58.

There is a very marked increase in the numbers not only of cases attending outdoor treatment but also maternity cases, both admitted to Hospital and attended to in their own houses.

The people within a few miles radius of the Hospital nearly always call for the services of our midwives and bring their children for treatment. This work will be gradually extended further afield, but the process is bound to be slow, as the native does not like changing his old customs. The main obstacle to this work is the continual change of Lady Medical Officers and the difficulty of getting a suitable officer.

The Girls' Schools at Alor Star, Sebrang Perak, Yen and Kota Kuala Muda were visited from time to time.

V. HOSPITALS AND DISPENSARIES.

The statistics of patients treated in Kedah Hospitals and Prison Sick Wards during the past 5 years are as follows:—

Year	No. treated	Deaths	Percentage of deaths
1343 ...	16,659	1,246	7.47
1344 ...	21,336	1,503	7.04
1345 ...	21,472	1,841	8.57
1346 ...	24,432	1,987	8.13
1347 ...	19,121	1,506	7.87

Excluding 389 deaths which occurred within 48 hours of admission, the death rate for 1347 was 5.84. The percentage of deaths within 48 hours of admission, to total deaths, was 25.83.

The number of patients treated was less than the previous 3 years. This is accounted for probably by the general improvement in health during the year.

The percentage of deaths was also less than the previous two years, which were bad malarial years.

Also the number of deaths which occurred within 48 hours of admission was much less, 389 against 608 in 1346. This points to the recognition of the importance of early treatment.

Patients from Estates.

5,323 estate coolies were admitted as indoor patients. There were 642 deaths, a percentage of 12.06. The previous year there were 8,650 coolies admitted from estates with 993 deaths, a percentage of 11.36. During the previous year 32.43 per cent of cases admitted died within 48 hours. During the year under review 31.79 per cent admitted, died within 48 hours.

The following figures give the number of Indian coolies admitted to Hospital during the last 5 years, and shew the proportions of estate coolies to paupers.

	1343	1344	1345	1346	1347
Estate coolies ...	6,852	9,079	8,880	8,650	5,323
Paupers ...	4,300	5,008	5,407	8,153	5,160
Total ...	11,152	14,087	14,287	16,803	10,483

The Indian population on Estates in 1346 was 44,123 in 1347 it was 35,757 but the percentage admitted to Government Hospitals in 1346 was 19.6 whereas in 1346 the percentage was 14.6, shewing a marked improvement in the health of the Estate Indian population.

Admissions and Deaths.

The number treated and the number of deaths in each hospital during 1347 A.H. were as follows:—

Hospital				No. treated	Deaths	Percentage of deaths
1.	Alor Star	...	...	5,253	293	5.57
2.	Sungei Patani	...	...	6,203	561	9.04
3.	Kulim	...	...	3,425	312	9.10
4.	Kuala Ketil	...	...	1,624	181	11.08
5.	Serdang	...	...	1,161	106	9.13
6.	Bandar Bahru	...	...	392	23	5.86
7.	Baling	...	...	437	10	2.28
8.	Langkawi	...	...	357	16	4.48
PRISON SICK WARDS.						
	Alor Star	...	...	186	2	1.07
	Sungei Patani	...	...	49	2	4.08
	Kulim	...	...	34	...	...
	Total	...	...	19,121	1,504	7.87

Nos. 2, 3, 4 and 5 are largely occupied by Estate coolies. Nos. 6, 7 and 8 are too small to take into account. No. 1 has only a few Estate coolies; therefore these figures go to shew that the bad health of the country comes from Estates.

The nationalities of Indoor Patients:—

Europeans	..	..	..	..	29
Eurasians	..	..	..	..	13
Chinese	..	..	..	..	5,556
Indians	..	..	..	..	12,075
Javanese	..	..	..	..	14
Malays	..	..	..	..	1,265
Japanese	..	..	..	..	3
Others	..	..	..	..	166
Total					19,121

The average daily number of indoor patients in Kedah Hospitals for the past 5 years was:—

1343	..	..	..	..	830.93
1344	..	..	..	..	975.23
1345	..	..	..	..	948.67
1346	..	..	..	..	1,002.94
1347	..	..	..	..	942.38

Prevailing Diseases.

Diseases	1345			1346			1347		
	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %
Malaria	7,984	544	6·81	10,016	673	6·72	6,289	484	7·69
Dysentery, amœbic ...	559	206	26·74	431	117	27·15	330	59	17·87
Dysentery, bacillary...	485	116	23·71	465	147	31·61	236	76	32·20
Venereal Diseases ...	804	14	1·74	733	2	·27	917	16	1·74
Respiratory Diseases (other than Pulm. Tuber:)	1,166	242	20·75	1,206	279	23·13	1,098	249	22·68
Pulmonary Tuber: ...	251	136	54·13	255	114	44·71	252	108	42·85
Ankylostomiasis ...	1,457	125	8·57	2,246	188	8·37	1,916	138	7·20
Ulcers	1,355	9	·66	1,587	7	·44	1,419	2	·14
Wounds & Injuries ...	976	23	2·35	920	8	·87	1,542	29	1·88
Other diseases ...	6,235	426	6·83	6,573	452	6·82	5,122	345	6·73
Total	21,472	1,841	8·57	24,432	1,987	8·13	19,121	1,506	7·87

Malaria.

The number of blood films examined for malaria in the various hospitals was as follows:—

Hospital	B. T.	M. T.	Quartan	Mixed Infection	Filaria	Negative	Total
Alor Star	697	282	32	9	...	4,299	5,319
Sungei Patani	1,296	606	77	154	1	3,751	5,885
Kulim	366	730	17	37	...	3,612	4,762
Kuala Ketil	247	65	8	...	...	601	921
Serdang	220	168	18	...	...	691	1,097
Bandar Bharu	46	31	1	1	...	102	181
Baling	17	64	...	...	...	162	243
Langkawi	71	52	...	...	...	166	289
Total	2,960	1,998	153	201	1	13,384	18,697

There was a decrease of 3,727 cases in the total treated for malaria when compared with the previous year's figures but the percentage of deaths was higher,—7·69 per cent as against 6·72 in 1346. This is in keeping with the percentage of infections with dangerous types of malaria.

In 1346, 36·4 per cent of positive films were of dangerous types (malignant, quartan, mixed). In 1347, 44·2 per cent of positive films were of dangerous type. These figures may partly be due to more expert diagnosis, as the Laboratory Assistants have had a special course of training, but undoubtedly there have been more serious types of malaria admitted during the year.

Dysentery.

Year				Cases treated	Deaths	Deaths %
1343	Amœbic	...	...	427	88	20.60
	Bacillary	...	...	615	123	20.00
1344	Amœbic	...	...	466	97	20.81
	Bacillary	...	...	731	155	21.20
1345	Amœbic	...	...	759	206	26.74
	Bacillary	...	...	485	116	23.71
1346	Amœbic	...	...	431	117	27.15
	Bacillary	...	...	465	147	31.61
1347	Amœbic	...	...	330	59	17.87
	Bacillary	...	...	236	76	32.20

The percentage of deaths from dysentery is still very high though the number of cases admitted is less.

Respiratory Diseases.

Of the total of 1,098 cases and 249 deaths, pneumonia accounted for 361 cases and 160 deaths.

Comparative figures for Pneumonia for the past 5 years are as follows:—

Year			Cases	Deaths	Deaths %
1343	...	...	408	150	38.28
1344	...	...	362	149	41.16
1345	...	...	492	214	43.49
1346	...	...	586	234	39.93
1347	...	...	361	160	44.32

Many of these cases are sequelae of some previous sickness, such as malaria and the patient is usually in a weak state of health which probably accounts for the high death rate.

Venereal Diseases.

				Cases.	Deaths.
Gonorrhoea and Gonorrhoeal Sequelae	..	..	..	289	..
Syphilis and Syphilitic Sequelae	..	..	..	432	16
Bubo	..	..	..	76	..
Soft Chancre	..	..	..	74	..
Total				917	16

2,577 injections of Neo-Salvarsan were given in the treatment of syphilis.

Yaws (Puru).

The number of injections given during the past 5 years for this disease was:—

Year.					Injections.
1343	..	..	..	..	5,995
1344	..	..	..	..	7,723
1345	..	..	..	..	8,653
1346	..	..	..	..	6,689
1347	..	..	..	..	9,641

It is difficult to make the people realize that one injection is not a cure, and many cases relapse. The head men and school teachers have been ordered to see that cases come for treatment, but they are very diffident about it and until there is an order making treatment compulsory the disease will always be prevalent.

Pulmonary Tuberculosis.

The cases and deaths for the past 5 years are as follows:—

				Cases.	Deaths.
1343	..	..	..	225	113
1344	..	..	..	287	150
1345	..	..	..	251	136
1346	..	..	..	255	114
1347	..	..	..	252	108

13 cases were treated in the Phthisis wards attached to the Hospital at Langkawi Island. Two of the cases were discharged as cured. Three cases absconded before they were fit for discharge; but they had greatly improved under treatment. Three cases who were admitted in an advanced stage of the disease died.

There is very little phthisis among the rural population who live in Attap houses and lead an open air life; nearly all the cases occur in those living in towns.

At Langkawi Island where there are special huts and a ward the results are very encouraging; but it is difficult to persuade the patient to stop here, (though a cure has been effected in a few cases of early infection that have been persuaded to stay on the Island long enough) though everything is done to make him comfortable.

The treatment consists of nourishing food, malt and codliver oil, regular prescribed exercises and sun bath. Patients are also encouraged to wear as little clothes as possible when the weather is warm, and spend all their time out of doors.

Ankylostomiasis.

1,916 cases and 138 deaths, shew a decrease of 330 cases and 50 deaths from the previous year's figures.

Many of the larger European managed Estates are paying attention to the preventions and regular treatment of ankylostomiasis, and the next few years should shew a marked reduction in cases.

Pregnancy and its Diseases.

332 cases connected with pregnancy were treated in the hospitals with 51 deaths.

In the whole State there were 247 deaths recorded under this heading, giving a percentage of 1.61 to total births. The number of still births in the State amounted to 964. These are not counted as births.

Early marriage and the ignorant native midwife are nearly always the causes of deaths. It will be a great many years before these causes can be removed.

Mental Diseases.

172 Kedah patients were under treatment in Tanjong Rambutan Mental Hospital at the beginning of the year; 59 were admitted, 22 were discharged as cured, 12 absconded, 16 died and the number remaining at the end of the year was 181.

Infectious Diseases treated in Hospitals.

				Cases.	Deaths.
Chicken-pox	..	..	..	25	..
Dengue	..	..	..	7	..
Enteric Fever	..	..	..	6	3
Erysipelas	..	..	..	10	2
Influenza	..	..	..	76	..
Measles	..	..	..	43	..
Mumps	..	..	..	9	..
Septicaemia	..	..	..	3	..
Pyaemia	..	..	..	7	3
Phagedoena	..	..	..	4	1

Leprosy.

		Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining
Pulan Jerejak and Jelutong	...	69	44	113	...	...	...	14	99
Pangkor Laut (Malays only)	...	9	1	10	...	...	...	1	9
Kedah Hospitals	...	5	54	59	...	45	4	1	9

Cases do not undergo regular treatment in Kedah Hospitals but are collected and sent off in batches to the various leper asylums.

Anti-rabic Treatment.

102 cases were admitted for dog bite. Of these 59 were confirmed or suspected as having been bitten by rabid dogs, and received anti-rabic serum injections.

Cases treated with anti rabic vaccine, grouped according to domicile and nationality:—

Course	Nationality		Kedah	Perlis	Total
Complete Course	Europeans	...	7	...	7
	Malays	...	9	6	15
	Chinese	...	14	2	16
	Indians	...	19	...	19
	Others	...	2	...	2
	Total	...	51	8	59

Results of Treatment.

Position of bite	I	II	III	IV	V	VI	Total	No. of deaths during or after treatment
Limbs and trunk unclothed	24	8	...	...	9	1	42	Nil
Limbs and trunk through clothing ...	9	5	...	...	...	3	17	Nil
Total ...	33	13	...	...	9	4	59	Nil

- I. Cases bitten by animals proved rabid by Laboratory examination.
- II. Cases bitten by animals certified rabid by Medical or Veterinary Officer—no laboratory tests.
- III. Cases bitten by animals almost certainly rabid according to history—no laboratory tests.
- IV. Cases with recent abrasions contaminated with saliva of proved rabid animals.
- V. Cases bitten by animals which were untraceable.
- VI. Cases having abrasions contaminated with saliva in which laboratory tests were negative.

Two of the cases from Perlis were reported to have died about 6 weeks after treatment. On investigation the deaths proved to be due to other causes than rabies.

Surgical Operations.

379 operations under general anaesthetics were performed. All these, excepting one by the Assistant Surgeon at Langkawi, were done by the Medical Officers at the three Central Hospitals.

Minor operations numbered 621.

There has been an increase in the number of operations. This is accounted for, I think, by the fact that one of the Medical Officers during the year, held the degree of F.R.C.S. and his enthusiasm accounted for the extra work done.

Post Mortems.

293 post mortems were done during the year at various Hospitals. Of these 137 were medico-legal cases.

Out-Door Dispensaries.

There has been a decrease in the number of cases attending the various dispensaries, as the following figures shew.

The motor dispensaries continue to do good work.

			1346.	1347.
New Cases	..	..	40,051	34,770
Repetitions	..	..	3,587	1,952
Total	..		<u>43,638</u>	<u>36,722</u>

Patients treated at the outdoor departments of the various hospitals amounted to 20,427 new cases and 4,411 repetitions.

Including patients treated at Dispensaries the total figures are: new cases 55,197 and repetitions 6,363.

Appendix S gives details of patients treated in hospitals in 1347.

VI. PRISONS.

Each of the three prisons, at Alor Star, Sungei Patani and Kulim, has a sick ward.

The Central Prison, Alor Star has a whole time dresser. Others are daily attended by a dresser from the hospital. The Medical Officer in each place pays routine daily visits.

The number of patients treated in these sick wards, during the last 5 years was:—

Year	No. treated	Deaths	Percentage of deaths
1343	317	17	5.36
1344	249	6	2.40
1345	239	12	5.02
1346	225	13	5.77
1347	269	4	1.49

Prevailing Diseases (1347 A. H.)

	Total treated	Deaths	Percentage of deaths
Malaria	39	1	2.56
Dysentery Amoebic	6	...	...
„ Bacillary	15	...	...
Other Bowel diseases	37	...	...
Venereal diseases	11	...	...
Respiratory diseases (other than Pulm. Tuber.)	50	2	4.00
Pulmonary Tuberculosis	4	...	...
Ankylostomiasis	19	1	5.26
Other diseases	88	...	...
Total	269	4	1.49

The daily average of inpatients for the last three years was:—

	1345		1346		1347	
	Prisoners	Patients	Prisoners	Patients	Prisoners	Patients
Alor Star	330	7·31	295	7·81	255·00	7·00
Sungei Patani	50	2·25	47	1·10	59·56	·13
Kulim	29	1·30	32	1·07	34·31	·79
Total	409	10·86	374	9·98	348·87	7·92

Out-Door Attendances.

The dispensary attendances numbered 7,348 and 5,629 repetitions. These figures include the administration of quinine to all prisoners during malarial seasons.

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Vital Statistics.

"A"

The population of Kedah for the year 1347 A.H. is estimated at 405,630 against 399,864 for 1346 A.H.

The following is a comparative table for the last 11 years:—

Year	Estimated Population	Births	Birth-rate per mille	Deaths	Death-rate per mille	
1329	245,813	...	...	...	...	Census figure
1336	290,000	7,902	27.25	6,299	21.72	
1337	300,000	9,102	30.34	11,548	38.49	
1338	325,000	9,593	29.51	8,557	26.14	
1339	338,558	10,153	29.99	8,718	25.75	Census figure
1340	340,000	10,305	30.30	8,656	25.40	
1341	341,596	9,454	27.73	7,834	23.41	
1342	350,000	11,095	31.70	7,877	22.41	
1343	375,500	11,152	29.69	8,647	23.02	
1344	384,124	11,342	29.52	9,910	25.75	
1345	398,222	13,738	34.40	10,723	26.92	
1346	399,864	13,066	32.68	11,424	28.57	
1347	405,630	15,347	37.83	9,561	23.57	

"B"

Population according to races with deaths and death-rate for the year, 1347.

Races	Approximate Population	Deaths	Death-rate per mille
European	400	...	...
Eurasian	160	...	...
Malays	279,000	5,427	19.45
Chinese	66,630	1,920	28.80
Indians	50,340	2,008	39.89
Others	9,100	206	22.61
Total ...	405,630	9,561	23.57

"C"

Infantile death rate for the last 9 years:—

Year.	Deaths.	Rate per mille.
1338	1,312	136.76
1339	1,980	194.98
1340	1,704	165.35
1341	1,530	161.73
1342	1,401	126.27
1343	1,689	151.45
1344	1,924	169.24
1345	2,248	163.64
1346	2,073	158.66
1347	1,963	127.91

Distribution of deaths according to sex and nationality, for the year, 1347.

Nationality				Male	Female	Total
European	...	...	...	0	0	0
Eurasian	...	...	...	0	0	0
Malays	...	...	...	2,797	2,630	5,427
Chinese	...	...	...	1,456	464	1,920
S. Indians	...	...	...	1,101	878	1,979
N. Indians	...	...	...	22	7	29
Others	...	...	...	98	108	206
Total ...				5,474	4,087	9,561

“ E ”

Births according to sex and nationality for the year, 1347.

Nationality				Male	Female	Total
European	...	...	...	1	1	2
Eurasian	...	...	...	4	1	5
Malays	...	...	...	5,744	5,466	11,210
Chinese	...	...	...	1,351	1,143	2,494
S. Indians	...	...	...	697	605	1,302
N. Indians	...	...	...	18	11	29
Others	...	...	...	159	146	305
Total ...				7,974	7,373	15,347

“ F ”

Still Births according to sex and nationality for the year, 1347.

Nationality				Male	Female	Total
European	...	...	...	...	...	...
Eurasian	...	...	...	...	...	...
Malays	...	...	...	381	321	702
Chinese	...	...	...	62	44	106
S. Indians	...	...	...	70	70	140
N. Indians	...	...	...	...	1	1
Others	...	...	...	11	4	15
Total ...				524	440	964

“ G ”

The Infantile death rate per thousand births, amongst the principal nationalities was:—

Malays	Chinese	Indians
111.95	136.72	262.96

“ H ”

Incidence of deaths according to ages and nationality for the year, 1347.

Ages			European	Eurasian	Malays	Chinese	S. Indian	N. Indian	Others	Total
1 year and under	...	...	0	0	1,255	341	347	3	17	1,963
5 years and under	...	...	0	0	919	154	298	2	25	1,398
15 do	...	...	0	0	453	86	149	2	22	712
25 do	...	...	0	0	406	181	247	4	16	854
35 do	...	...	0	0	503	280	495	10	21	1,309
45 do	...	...	0	0	391	322	207	5	30	955
55 do	...	...	0	0	335	280	123	2	26	766
65 do	...	...	0	0	424	184	61	1	26	696
75 do	...	...	0	0	320	66	25	0	17	428
Over 75 years	...	...	0	0	421	26	27	0	6	480
Total			0	0	5,427	1,920	1,979	29	206	9,561

“ I ”

Table showing principal causes of deaths (according to register of deaths) for the year, 1347.

Deaths from Preventable Diseases:—

	Fever unspecified	..	..	..	2,754
	Malaria	..	..	..	574
	Tuberculosis	..	..	..	251
	Dysentery Amoebic	..	..	..	101
	Dysentery Bacillary	..	..	..	124
	Ankylostomiasis	..	..	..	964
	Conditions connected with child birth	..	..	..	247
	Syphilis	..	..	..	30
	Pneumonia	..	..	..	199
	Septicaemia	..	..	..	7
	Other Infective Diseases	..	..	..	13
5,272	Yaws (Puru)	..	..	..	8

General Diseases.

Death from:—

	Digestive system..	..	..	..	168
	Respiratory System	..	..	..	234
	Nervous System ..	..	..	..	81
	Circulatory System	..	..	..	43
	Tumours	..	..	..	26
	Infantile Convulsion	..	..	..	2,034
4,289	Old age, ill defined conditions, accident etc.*	..	..	..	1,703
9,561	Total				9,561

“ J ”

Cases of Infectious Diseases, for the year, 1347.

Reported to Health Office during 1347 (3-7-28 to 6-6-29).

Chicken-Pox	..	..	..	..	49
Diphtheria	..	..	..	..	1
Measles ..	..	..	..	..	87
German Measles	..	..	..	..	1
Tropical Typhus	..	..	..	..	1
Mumps ..	..	..	..	..	1
Typhoid Fever	..	..	..	..	10
Para Typhoid	..	..	..	..	2
Total ..					152

“ K ”

School figures, 1347 A. H.

1. Total in Register	..	..	..	3,725
2. Total inspected	..	..	..	3,008

No.	Diseases				Cases	Percentage
1	Spleen	...	...	...	98	3.22
2	Anæmia	...	...	...	152	5.05
3	Not Vaccinated	...	...	...	474	15.76
4	Eye Diseases	...	...	...	7	.23
5	Ear Diseases	...	...	...	6	.19
6	Scabies	...	...	...	27	.89
7	Skin Diseases	...	...	...	56	1.86
8	Yaws	...	...	...	17	.56

Total schools visited by Health Officer	..	..	1
Total schools visited by S. H. Inspector	..	..	34
Total schools visited by H. Inspectors	..	..	5
Total ..			40

“ L ”

Estate figures.

Population by nationalities and sex of European holdings, 1347.

No.	Nationalities				Labourers		Dependents		Infants
					Male	Female	Adult	Children	
1	Malays	...	...		1,824	1,363	388	714	144
2	Indians	...	...		15,687	10,220	2,623	5,974	1,253
3	Chinese	...	...		1,300	156	94	63	75
4	Javanese	...	...		185	64	51	26	17
5	Others	...	...		196	18	38	37	6
	Total	...			19,192	11,821	3,194	6,814	1,495

“ M ”

Population by nationalities and sex of native holdings, 1347

No.	Nationalities			Labourers		Dependents		Infants
				Male	Female	Adult	Children	
1	Malays	...	...	3,638	2,735	214	987	127
2	Indians	...	...	1,524	499	127	290	49
3	Chinese	...	...	2,824	128	84	133	16
4	Javanese	...	...	172	12	35	5	1
5	Others	...	...	27	3	...	1	...
Total				8,185	3,377	460	1,416	193

Total visits to estates by Health Officer and Staff for 1347—377 visits.

“ N ”

Deaths by nationalities on Estates of European holdings, 1347.

No.	Nationalities			Labourers	Dependents		Infants
					Adult	Children	
1	Malays	...	...	5	4	4	5
2	Indians	...	...	81	3	1	2
3	Chinese	...	...	...	3	1	2
Total				86	10	6	9

“ O ”

Total labourers and dependents admitted to Government Hospitals from European holdings, with deaths for 1347.

1.	Total admission	..	..	..	5,162
2.	Total deaths	..	..	..	626

“ P ”

Deaths by nationalities on Estates of Native holdings, 1347.

No.	Nationalities			Labourers	Dependents		Infants
					Adult	Children	
1	Malays	...	...	...	1	1	1
2	Indians	...	...	...	2	1	...
3	Chinese	...	...	3	...	...	...
Total				3	3	2	1

“ Q ”

Total labourers and dependents admitted to Government Hospitals from native holdings with deaths for 1347.

1.	Total admissions	..	..	..	161
2.	Total deaths	..	..	..	16

Estate admission to Government Hospitals with deaths, by diseases, according to District, for 1347.

No.	District	Malaria		Anky		Dysentery		O. B. Diseases		Pneumonia		Other Diseases		Total			
		A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.		
1	Alor Star	...	...	35	2	26	...	3	...	8	...	4	2	121	16	197	20
2	Sungei Patani	...	...	895	105	299	31	94	26	53	2	74	40	941	59	2,356	263
3	Kulim	...	...	233	41	158	5	35	16	6	...	70	26	480	56	982	144
4	Kuala Ketil	...	...	206	38	98	8	38	15	3	3	34	12	376	52	755	128
5	Serdang	...	...	167	26	89	10	24	4	...	...	44	13	267	15	591	68
6	Bandar Bahru	...	...	32	2	29	1	8	1	12	...	5	4	94	3	180	11
7	Baling	...	...	9	2	6	...	5	...	...	...	...	...	20	...	40	2
8	Langkawi	...	...	87	2	28	...	4	...	3	...	8	2	92	2	222	6
Total		...	...	1,664	218	733	55	211	62	85	5	239	99	2,391	203	5,323	642

APPENDIX—S.

ANNUAL RETURN OF INDOOR PATIENTS, TREATED IN HOSPITALS IN KEDAH,
DURING THE YEAR, 1347 A.H.

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
INFECTIVE DISEASES.						
Amoebiasis ...	...	1	1	1	...	
Chicken-pox ...	1	24	...	25	1	
Dengue ...	1	6	...	7	...	
Diphtheria ...	1	1	1	2	...	
Dysentery Amoebic ...	21	309	59	330	21	
Dysentery Bacillary ...	12	224	76	236	8	
Enteric Fever ...	1	5	3	6	...	
Erysipelas ...	...	10	2	10	...	
Gonorrhœa ...	14	216	...	230	16	
Gonorrhœal Rheumatism ...	4	41	...	45	2	
Gonorrhœal Conjunctivitis ...	1	8	...	9	1	
Gonorrhœal Orchitis ...	...	3	...	3	...	
Gonorrhœal Epididymitis ...	...	2	...	2	...	
Influenza ...	...	76	...	76	15	
Leprosy ...	5	54	1	59	9	
Malaria :—						
(a) Benign tertian ...	194	2,683	136	2,877	69	
(b) Quartan ...	12	120	13	132	3	
(c) Malignant tertian ...	190	2,079	254	2,269	99	
(d) Mixed infection ...	23	113	31	136	...	
(e) Type undiagnosed ...	32	496	19	528	20	
(f) Malarial cachexia ...	32	311	30	343	20	
(g) Blackwater fever ...	...	4	1	4	...	
Measles ...	...	43	...	43	4	
Mumps ...	1	8	...	9	1	
Phagedœna ...	...	4	1	4	...	
Pneumonia ...	20	361	160	381	5	
Pyæmia ...	...	7	3	7	1	
Pyrexia of uncertain origin ...	...	27	...	27	...	
Rheumatism ...	1	22	1	23	2.	
Septicæmia ...	...	3	...	3	...	
Syphilis :—						
(a) Primary ...	4	42	...	46	7	
(b) Secondary ...	10	344	4	354	18	
(c) Inherited ...	1	18	4	19	3	
(d) Tertiary ...	7	52	8	59	3	
Tetanus ...	...	6	4	6	1	
Tuberculosis :—						
(a) General ...	2	...	...	2	...	
(b) Phthisis ...	30	222	108	252	26	
Tubercular Glands Neck ...	...	8	...	8	2	
Hip ...	...	1	...	1	1	
Peritonitis ...	...	1	...	1	...	
Gland ...	...	3	...	3	...	
Laryngitis ...	...	1	...	1	...	
Psoas Abscess ...	...	1	1	1	...	
Whooping Cough ...	...	3	...	3	...	
Yaws ...	1	35	...	36	2	
Other Infective Diseases ...	1	2	...	3	...	
INTOXICATIONS.						
Alcoholism ...	...	16	...	16	...	
Morphinism ...	...	8	...	8	...	
Other Intoxications ...	...	2	...	2	...	

Diseases			Remained	Admitted	Died	Total	Remaining	Remarks
GENERAL DISEASES.								
Anæmia	...	...	2	42	2	44	1	
Beri-beri	...	...	4	53	5	57	7	
Diabetes	...	...	...	5	...	5	...	
Debility	...	...	...	2	...	2	...	
Inanition	...	...	...	1	1	1	...	
Lymphadenoma	...	...	...	1	1	1	...	
Marasmus	...	...	...	22	18	22	...	
Osteo-arthritis	...	...	...	2	...	2	...	
Senility	...	...	...	9	3	9	3	
Other General Diseases	...	...	...	73	25	73	6	
CERTAIN MORBID CONDITIONS INCIDENT TO VARIOUS PARTS.								
Malformations	...	...	...	2	...	2	...	
New Growth, Non-malignant	...	...	1	13	2	14	...	
Do. Malignant	...	...	...	29	9	29	3	
Cyst	...	...	...	10	...	10	...	
Other Morbid Conditions	...	...	...	8	7	8	...	
DISEASES OF THE NERVOUS SYSTEM.								
Nerves :—								
Neuritis	...	...	2	14	...	16	1	
Neuritis peripheral	...	...	...	3	...	3	...	
Multiple neuritis	...	...	...	1	...	1	...	
Other Diseases of the Nerves...	...	...	...	11	...	11	...	
Spinal Cord and Membranes :—								
Myelitis	...	...	...	3	...	3	1	
Progressive muscular atrophy	...	...	...	1	...	1	...	
Locomotor ataxia	...	...	1	2	...	3	1	
Meningeal hæmorrhage	...	...	...	1	...	1	...	
Other Diseases of the Spinal Cord and Membranes	...	...	...	...	...	...	...
Brain and Membranes :—								
Meningitis	...	...	...	2	1	2	...	
Hæmorrhage	...	...	...	2	1	2	...	
Hæmatoma	...	...	...	1	...	1	...	
Abscess of brain	...	...	...	7	6	7	...	
Hydrocephalus	...	...	...	1	...	1	...	
Other Diseases of Brain and Membranes	...	...	1	3	1	4	1	
Nervous Disorders :—								
Apoplexy	...	...	...	4	1	4	...	
Paraplegia	...	...	...	5	1	5	3	
Hemiplegia	...	...	2	19	4	21	3	
Disseminated sclerosis	...	...	...	1	...	1	...	
Chorea	...	...	1	...	...	1	...	
Convulsions	...	...	1	10	6	11	...	
Epilepsy	...	...	...	6	1	6	...	
Neuralgia	...	...	...	44	...	44	...	
Hysteria	...	...	...	5	...	5	...	
Other Nervous Disorders	...	...	...	8	1	8	1	

Diseases			Remained	Admitted	Died	Total	Remaining	Remarks
MENTAL DISEASES.								
Idiocy	...	...	...	1	...	1	...	
Imbecility	...	...	...	1	...	1	...	
Mania	...	...	1	29	1	30	...	
Melancholia	...	...	...	8	...	8	...	
Migrane	...	...	...	1	...	1	...	
Delusional insanity	...	...	...	3	...	3	...	
Præcox	...	...	...	1	...	1	...	
Psychosis	...	...	...	3	...	3	...	
Dementia	...	...	...	7	2	7	...	
Hallucination	...	...	1	...	...	1	...	
Observation	...	...	...	9	...	9	...	
DISEASES OF THE EYE.								
Conjunctivitis	...	...	2	56	...	58	4	
Trachoma	...	...	...	5	...	5	...	
Keratitis	...	...	...	6	...	6	1	
Ulcer of Cornea	...	...	1	46	...	47	3	
Opacity of Cornea	...	...	...	2	...	2	...	
Chalazion	...	...	...	1	...	1	...	
Iritis	...	...	...	10	...	10	...	
Glaucoma	...	...	...	1	...	1	...	
Optic atrophy	...	...	...	2	1	2	...	
Cataract	...	...	6	4	...	10	6	
Blindness	...	...	7	...	...	7	7	
Blepharitis	...	...	...	3	...	3	...	
Etropion	...	...	...	2	...	2	...	
Panophthalmitis	...	...	...	4	...	4	...	
Amblyopia and Amaurosis	...	...	...	1	...	1	...	
Other Eye Diseases	...	...	2	15	2	17	...	
DISEASES OF THE EAR.								
Inflammation	...	...	2	23	...	25	...	
Otitis	...	...	...	3	...	3	...	
Otorrhœa	...	...	...	3	...	3	1	
Mastoid abscess	...	...	...	4	...	4	...	
Other Ear Diseases	...	...	1	13	1	14	1	
DISEASES OF THE NOSE.								
Inflammation	...	...	...	5	...	5	...	
Coryza	...	...	...	4	...	4	...	
Nasal Catarrh	...	...	...	1	...	1	...	
Other Nose Diseases	...	...	...	10	...	10	...	
DISEASES OF THE CIRCULATORY SYSTEM.								
Pericarditis	...	...	...	4	1	4	...	
Mitral Regurgitation	...	...	...	2	...	2	...	
Aortic Regurgitation	...	...	...	1	1	1	...	
Endocarditis	...	...	...	6	2	6	...	
Valvular Disease	...	...	...	13	4	13	...	
Myocarditis	...	...	...	14	6	14	...	
Auricular febrillation of heart	...	...	...	1	1	1	...	
Dilatation of heart	...	...	...	1	1	1	...	
Syncope	...	...	...	6	6	6	...	
Disordered action of heart	...	...	...	5	2	5	...	
Aneurysm	...	...	...	5	...	5	...	
Phlebitis	...	...	...	2	...	2	...	
Thrombosis	...	...	...	3	...	3	...	
Auricular flutter	...	...	...	1	...	1	...	
Varix	...	...	...	2	...	2	...	
Other Diseases of the System	...	...	1	5	...	6	...	

Diseases		Remained	Admitted	Died	Total	Remaining	Remarks
DISEASES OF THE RESPIRATORY SYSTEM.							
Asthma	...	1	84	1	85	2	
Common cold	...	...	2	...	2	...	
Laryngitis	...	1	4	...	5	...	
Myxoedema	...	...	1	...	1	...	
Bronchitis	...	6	296	10	302	16	
Broncho-pneumonia	...	2	195	55	197	4	
Gangrene of lung	...	...	1	1	1	...	
Lung bruised	...	...	1	...	1	...	
Pleurisy	...	1	70	11	71	2	
Empyema	...	2	35	7	37	1	
Tracheitis	...	...	2	...	2	...	
Other Diseases of the System	...	1	12	4	13	...	
DISEASES OF THE DIGESTIVE SYSTEM.							
Stomatitis	...	...	2	...	2	...	
Gangrene of mouth	...	...	4	4	4	...	
Pyorrhœa alveolaris	...	...	9	...	9	...	
Caries of tooth	...	2	10	...	12	2	
Ulceration of tongue	...	...	2	...	2	...	
Tonsillitis	...	...	12	...	12	...	
Inflammation of pharynx	...	...	6	...	6	...	
Gastritis	...	1	23	1	24	2	
Ulceration of stomach	...	...	21	2	21	...	
Dyspepsia	...	...	23	...	23	1	
Enteritis	...	7	46	11	53	1	
Appendicitis	...	...	19	1	19	1	
Colitis	...	...	3	1	3	...	
Ulceration of intestines	...	...	1	...	1	...	
Intestinal obstruction	...	...	5	...	5	...	
Diarrhœa	...	3	109	5	112	6	
Constipation	...	...	33	...	33	...	
Colic	...	...	21	...	21	2	
Ischio-rectal abscess	...	...	9	...	9	1	
Ulcer of anus	...	...	3	1	3	...	
Fissure of anus	...	...	5	...	5	...	
Fistula in ano	...	...	15	...	15	1	
Hemorrhoids	...	1	28	...	29	4	
Hepatitis	...	2	43	1	45	3	
Abscess of liver	...	2	26	1	28	2	
Cirrhosis of liver	...	2	31	16	33	5	
Jaundice	...	1	12	5	13	2	
Gall stones	...	...	2	...	2	...	
Alveolar abscess	...	...	2	...	2	1	
Appendicular abscess	...	...	5	...	5	1	
Appendicular gangrene	...	...	1	1	1	...	
Cancer pylorus	...	...	1	...	1	...	
Ptomaine poisoning	...	...	1	...	1	...	
Malnutrition	...	...	1	1	1	...	
Cystitis	...	...	1	...	1	...	
Cholecystitis	...	...	1	...	1	...	
Imperforate anus	...	...	1	...	1	...	
Diverticulitis	...	...	1	...	1	...	
Jaundice neonatorum	...	...	1	1	1	...	
Suppurative Cholangitis	...	...	1	1	1	...	
Sub-acute portal inflammation and toxæmia	...	...	1	1	1	...	
Other Diseases of the System	...	...	31	3	31	1	
DISEASES OF THE LYMPHATIC SYSTEM.							
Spleen, Inflammation	...	...	5	...	5	1	
Spleen, Rupture	...	...	2	2	2	...	
Adenitis	...	...	3	...	3	...	
Bubo	...	2	74	...	76	5	

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
DISEASES OF THE LYMPHATIC SYSTEM.— <i>contd.</i>						
Perisplenitis ...	...	1	...	1	...	
Suppuration of Glands ...	...	5	1	5	...	
Lymphangitis ...	...	7	...	7	...	
Other Diseases of the System ...	...	7	...	7	1	
DISEASES OF THE URINARY SYSTEM.						
Acute Nephritis ...	2	51	24	53	5	
Bright's Disease ...	...	10	4	10	1	
Renal Colic ...	...	2	...	2	...	
Cystitis ...	...	4	...	4	...	
Calculus ...	...	5	...	5	...	
Rupture Urethra ...	...	1	...	1	...	
Retention of Urine ...	...	9	1	9	...	
Extravasation of Urine ...	...	2	...	2	...	
Renal Tumor ...	...	1	...	1	...	
Other Diseases of the System ...	...	8	1	8	...	
DISEASES OF THE GENERATIVE SYSTEM. MALE.						
Stricture ...	...	9	1	9	...	
Urethral fistula ...	...	4	1	4	...	
Phimosis ...	...	23	...	23	1	
Ulcer Penis ...	...	3	...	3	...	
Soft chancre ...	5	69	...	74	2	
Perineal abscess ...	...	1	...	1	...	
Scrotum, Abscess ...	...	1	...	1	...	
Do. Sloughing ...	...	2	...	2	...	
Hydrocele ...	1	18	...	19	1	
Orchitis ...	1	21	...	22	1	
Epididymitis ...	...	10	...	10	...	
Other Diseases, Male Organs ...	...	14	...	14	3	
FEMALE.						
Metritis ...	...	1	...	1	...	
Pyosalpinx ...	...	1	1	1	...	
Bartholin glands ...	...	1	...	1	...	
Gonorrhœal vaginitis ...	...	2	...	2	...	
Ovarian cyst ...	...	1	1	1	...	
Rape ...	...	1	...	1	...	
Prolapse of uterus ...	...	1	...	1	...	
Vulva, Soft chancre ...	...	1	...	1	...	
Retroversion of uterus ...	...	1	...	1	...	
Other Diseases, Female Organs...	2	28	...	30	2	
AFFECTIONS CONNECTED WITH PREGNANCY AND PARTURITION.						
Natural labour ...	2	155	6	157	8	
Difficult labour ...	1	30	9	31	...	
Eclampsia ...	...	4	...	4	1	
Abortion ...	1	24	1	25	...	
Hyperemesis gravidarum ...	...	1	...	1	...	
Rupture perineum ...	...	2	...	2	...	
Retention of placenta ...	1	2	1	3	...	
Still-birth ...	1	2	...	3	...	
Puerperium ...	...	1	...	1	...	
Premature birth ...	...	23	17	23	2	
Pregnancy ...	...	1	...	1	...	
Puerperal sepsis ...	...	6	1	6	...	
Puerperal sapræmia ...	2	34	13	36	...	
Other affections ...	2	37	3	39	2	

Diseases			Remained	Admitted	Died	Total	Remaining	Remarks
DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.								
Periostitis	...	...	...	7	2	7	...	
Cariés of bones	...	...	...	5	...	5	...	
Necrosis of bones	...	...	...	12	...	12	...	
Arthritis	...	...	...	47	...	47	...	
Synovitis	...	...	3	63	...	66	2	
Ankylosis	...	...	...	1	...	1	...	
Fibromyositis	...	...	...	2	...	2	2	
Lumbago	...	...	...	7	...	7	1	
Curvature Spine	...	...	...	1	...	1	...	
Myalgia	...	...	...	25	...	25	...	
Other Diseases of the Organs of Locomotion	...	...	1	19	...	20	1	
DISEASES OF THE CONNECTIVE TISSUE.								
Abscess	...	...	16	199	3	215	7	
Cellulitis	...	...	5	100	7	105	9	
Gangrene	...	...	3	14	4	17	4	
Hernia	...	...	4	45	8	49	3	
Oedema	...	...	...	1	...	1	...	
Carbuncle	...	...	2	16	1	18	...	
Peritonitis	...	...	1	19	9	20	...	
Sinus	...	...	...	3	...	3	...	
Whitlow	...	...	...	1	...	1	...	
Ascites of unknown origin	...	...	...	3	...	3	...	
Other Diseases of the Connective Tissue	...	...	...	32	...	32	...	
DISEASES OF THE SKIN.								
Arsenical Dermatitis	...	...	...	2	1	2	...	
Eczema	...	...	1	42	...	43	1	
Boil	...	...	...	9	...	9	...	
Condylomata	...	...	...	1	...	1	...	
Impetigo	...	...	...	2	1	2	...	
Herpes	...	...	...	4	...	4	...	
Herpes zoster	...	...	...	3	...	3	...	
Psoriasis	...	...	...	5	...	5	...	
Ulcer	...	...	124	1,295	2	1,419	122	
Urticaria	...	...	...	1	...	1	...	
Pemphigus	...	...	...	1	1	1	...	
Other Skin Diseases	...	...	3	28	...	31	2	
INJURIES.								
Wounds	...	...	19	936	13	955	36	
Sprains	...	...	...	149	1	149	...	
Fractures, simple	...	...	6	93	2	99	3	
Do. compound	...	...	3	27	9	30	2	
Do. base skull	...	...	...	3	2	3	...	
Dislocations	...	...	...	9	...	9	...	
Burn	...	...	...	9	2	9	3	
Cut throat	...	...	...	1	1	1	...	
Contusion	...	...	...	1	...	1	...	
Crushed foot	...	...	...	1	1	1	...	
Dog bite	...	...	3	99	...	102	6	
Snake bite	...	...	...	29	2	29	1	
Centipede bite	...	...	...	1	...	1	...	
Insect bite	...	...	...	2	...	2	...	
Guana bite	...	...	...	1	...	1	...	
Crocodile bite	...	...	...	1	...	1	...	
Electrical shock	...	...	...	1	...	1	...	
Other injuries	...	...	5	292	2	297	8	

Diseases			Remained	Admitted	Died	Total	Remaining	Remarks
POISONS.								
Belladonna	...	...	...	1	...	1	...	
Opium	...	...	...	11	...	11	...	
Other Poisons	...	...	...	12	2	12	...	
PARASITES.								
Ring worm	...	...	...	3	...	3	...	
Taenia solium	...	...	...	9	...	9	...	
Ascaris Lumbricoides	...	...	20	401	8	421	19	
Ankylostomiasis	...	...	110	1,806	138	1,916	89	
Filaria	...	...	...	16	...	16	1	
Other Nematoda	...	...	...	18	1	18	3	
Tinea Tonsurans	...	...	...	6	...	6	...	
Do. Circinata	...	...	...	3	...	3	...	
Tinea Imbricata	...	...	...	1	...	1	...	
Scabies	...	...	3	271	...	274	12	
Other Animal parasites	...	...	...	7	...	7	2	
Not yet diagnosed	...	...	...	36	...	36	...	
Malingering	...	...	...	3	...	3	...	
Under Observation	...	...	52	711	1	763	32	
No discoverable disease	...	...	11	205	...	216	5	
TOTAL			...	1,114	18,007	1,506	19,121	890

APPENDIX—T. RETURN OF RAINFALL.

From 1st August, 1928 A.D. to 31st May, 1929 A.D.

MONTHS, 1928-1929.		Alor Star.	Langkawi.	Sungei Patani.	Baling.	Kuala Ketil.	Kulim.	Serdang.	Bandar Bahru.	Padang Besar.	Perlis.
		Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
August	...	...	6.19	5.75	4.26	5.10	5.58	6.59	3.57	5.82	5.90
September	...	...	14.77	20.19	6.39	10.36	9.61	11.61	15.02	7.28	12.64
October	...	...	14.63	7.35	17.84	12.32	13.53	15.61	5.70	11.21	10.12
November	...	...	2.72	9.53	9.42	4.63	13.51	14.67	15.90	6.77	5.12
December	...	...	2.59	7.32	7.45	9.59	6.87	11.61	10.28	8.39	2.47
January	...	...	.48	1.13	1.38	1.01	3.62	4.23	1.48	.60	.39
February	...	...	6.60	8.66	5.72	8.40	12.92	11.61	10.18	2.53	4.99
March	...	...	5.67	5.56	8.22	10.22	11.96	19.71	8.78	6.13	10.50
April	...	...	6.31	9.52	11.94	13.33	12.85	5.39	6.98	6.25	4.92
May	...	...	8.48	8.78	4.74	8.78	5.65	3.59	5.27	3.67	6.99
TOTAL	...	68.87	68.44	83.79	77.36	83.74	96.10	104.62	83.16	58.65	64.04

APPENDIX—U.

METEOROLOGICAL RETURN OF HOSPITAL. ALOR STAR.

from 1st August, 1928 A.D. to 31st May, 1929 A.D.

MONTHS, 1928-1929		TEMPERATURE				HYGROMETER				Total Rainfall	Greatest Rainfall during 24 hours	
		Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
August	80.2	89.0	77.2	11.8	77.5	.888	75.7	86.2	11.11	2.46
September	79.9	88.3	73.9	14.4	77.1	.874	75.2	85.7	16.09	2.34
October	80.9	88.2	77.1	11.1	77.4	.868	75.0	82.4	9.92	2.22
November	81.3	89.8	76.0	13.8	76.2	.812	73.0	76.1	2.71	.89
December	79.9	88.6	74.9	13.7	75.0	.777	71.7	76.2	4.07	1.20
January	82.8	90.9	72.8	18.1	73.9	.682	67.9	60.8	2.39	2.25
February	80.9	92.2	74.7	17.5	75.0	.759	71.0	72.0	2.63	.92
March	81.4	93.0	75.4	17.6	76.1	.801	72.6	74.8	6.83	2.14
April	83.1	92.9	77.0	15.9	78.0	.857	74.6	75.8	6.82	1.80
May	83.1	91.9	78.8	12.8	78.1	.863	74.8	76.3	6.30	1.65
												Highest Shade Temperature=96.00 on 6.2.29, 7.2.29, and 6.3.29. Lowest Shade Temperature=68.00 on 13.1.29.

APPENDIX—V.

METEOROLOGICAL RETURN OF HOSPITAL, SUNGEI PATANI,

from 1st August, 1928 A.D. to 31st May, 1929 A.D.

Months, 1928-1929		TEMPERATURE				HYGROMETER				Total Rainfall	Greatest Rainfall during 24 hours	Highest Shade Temperature=100·00 on 7.2.1929	Lowest Shade Temperature=64·00 on 13.11.1929
		Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity				
August	82·5	92·2	72·4	19·8	77·0	·820	73·3	73·9	5·75	1·03	
September	81·0	90·2	72·4	17·8	76·5	·826	73·5	78·1	20·19	4·18	
October	82·0	90·0	72·0	18·0	77·0	·829	73·6	75·9	7·35	1·17	
November	81·9	91·2	72·1	19·0	76·4	·807	72·8	74·2	9·53	2·08	
December	80·6	89·7	72·2	17·6	75·4	·782	71·9	75·0	7·32	1·80	
January	82·0	94·0	70·0	24·0	74·1	·704	68·8	64·4	1·13	·98	
February	82·2	96·6	71·9	21·1	75·3	·751	70·7	68·3	8·66	2·30	
March	82·4	93·2	72·1	21·1	76·0	·779	71·8	70·4	5·56	·90	
April	84·0	93·5	73·4	20·1	77·7	·826	73·5	70·9	9·52	4·06	
May	83·3	92·7	74·3	18·7	78·0	·854	74·5	74·9	8·78	2·32	

APPENDIX—W.

METEOROLOGICAL RETURN OF HOSPITAL, KULIM,

from 1st August, 1928 A.D. to 31st May, 1929 A.D.

MONTHS, 1928-1929		TEMPERATURE				HYGROMETER				Total Rainfall	Greatest Rainfall during 24 hours	Highest Shade Temperature=104.00 on 23.1.29.	Lowest Shade Temperature=60.00 on 17.1.29.
		Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity				
August	82.4	90.9	73.1	17.8	80.0	.974	78.5	88.1	5.58	.91	
September	82.4	91.7	72.9	18.8	78.3	.885	75.6	80.0	9.61	3.35	
October	81.5	91.0	72.6	18.4	77.9	.880	75.4	81.9	13.53	2.28	
November	81.4	91.9	72.4	19.5	78.0	.888	75.7	82.9	13.51	2.70	
December	78.8	89.6	72.0	17.6	75.1	.801	72.6	81.4	6.87	1.42	
January	78.7	97.0	69.3	27.7	75.7	.832	73.7	84.8	3.62	1.91	
February	80.6	94.2	72.4	21.8	77.4	.874	75.2	83.8	12.92	2.64	
March	82.2	94.5	72.0	22.5	78.5	.900	76.1	81.8	11.96	3.30	
April	84.2	92.7	73.8	18.9	80.3	.952	77.8	81.1	12.85	2.00	
May	86.2	93.0	74.6	18.5	81.3	.965	78.2	77.2	5.65	2.23	

APPENDIX—X.

METEOROLOGICAL RETURN OF HOSPITAL, LANGKAWI,

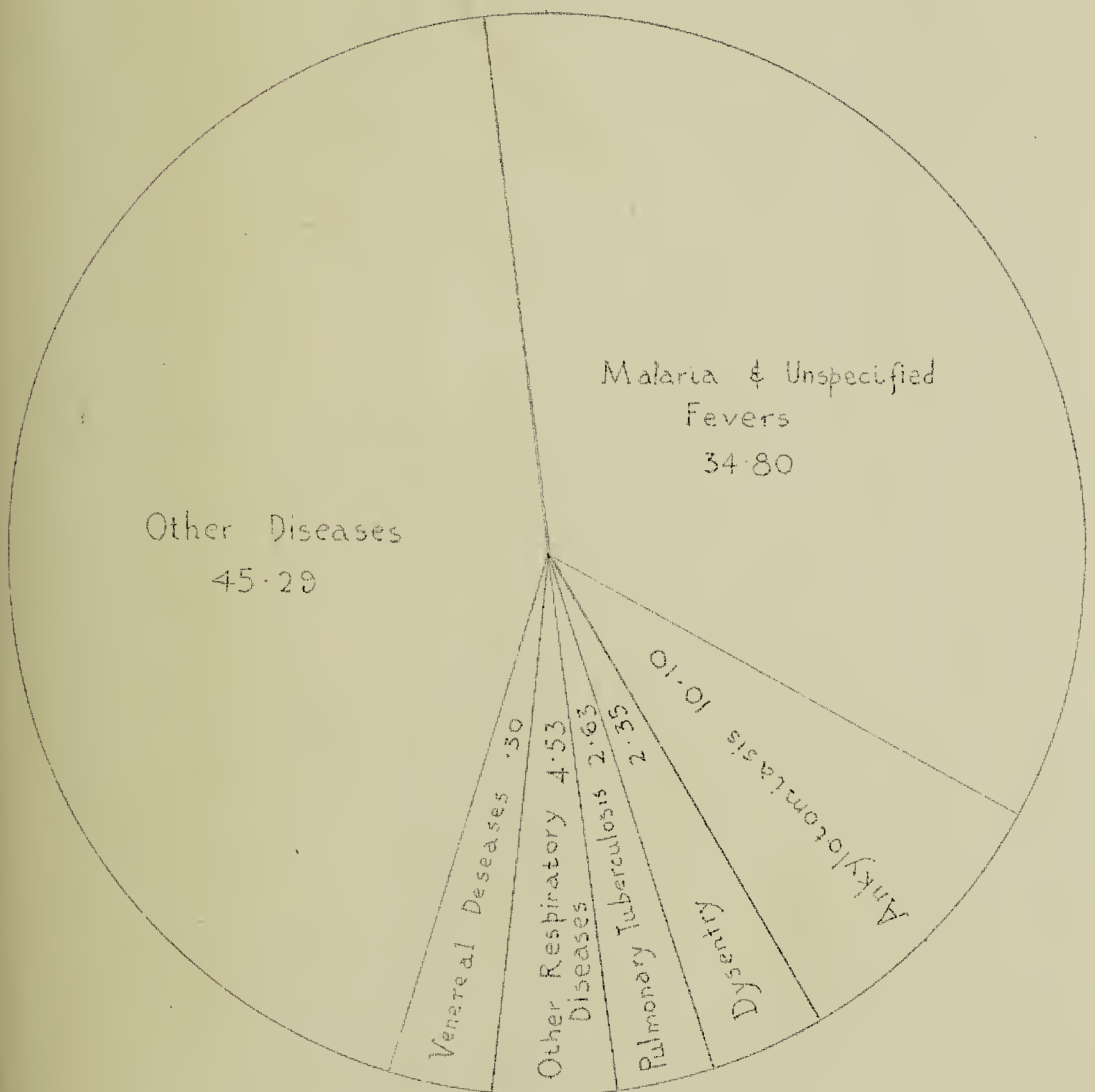
from 1st August, 1928 A.D. to 31st May, 1929 A.D.

MONTHS, 1928-1929		TEMPERATURE				HYGROMETER				Total Rainfall	Greatest Rainfall during 24 hours	
		Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
August	...	85.2	90.8	73.6	17.2	77.8	.812	73.0	% 66.9	6.19	.80	Highest Shade Temperature = 100.00 on 17-4-1929. Lowest Shade Temperature = 70.00 on 20-8-1928, 28-11-1928, and 29-1-1929.
September	...	82.2	89.7	73.3	16.4	78.1	.880	75.4	80.1	14.77	2.09	
October	...	83.2	90.5	74.1	16.4	78.4	.874	75.2	77.0	14.63	2.96	
November	...	83.3	92.3	73.8	18.5	73.5	.661	67.0	58.0	2.72	.47	
December	...	83.7	91.3	74.0	17.7	77.2	.810	72.9	70.1	2.59	.58	
January	...	84.6	92.5	71.7	20.7	74.4	.678	67.7	57.0	.48	.33	
February	...	84.2	97.4	74.1	20.0	75.5	.728	69.8	62.0	6.60	1.85	
March	...	87.6	94.6	75.8	18.7	77.0	.738	70.2	56.4	5.67	1.72	
April	...	86.6	95.1	75.8	19.3	79.0	.843	74.1	66.5	6.31	1.36	
May	...	86.5	94.0	75.0	19.0	81.0	.943	77.5	74.6	8.48	2.45	

(1)

PERCENTAGE OF DEATHS FROM CERTAIN DISEASES TO
TOTAL DEATHS IN THE STATE.

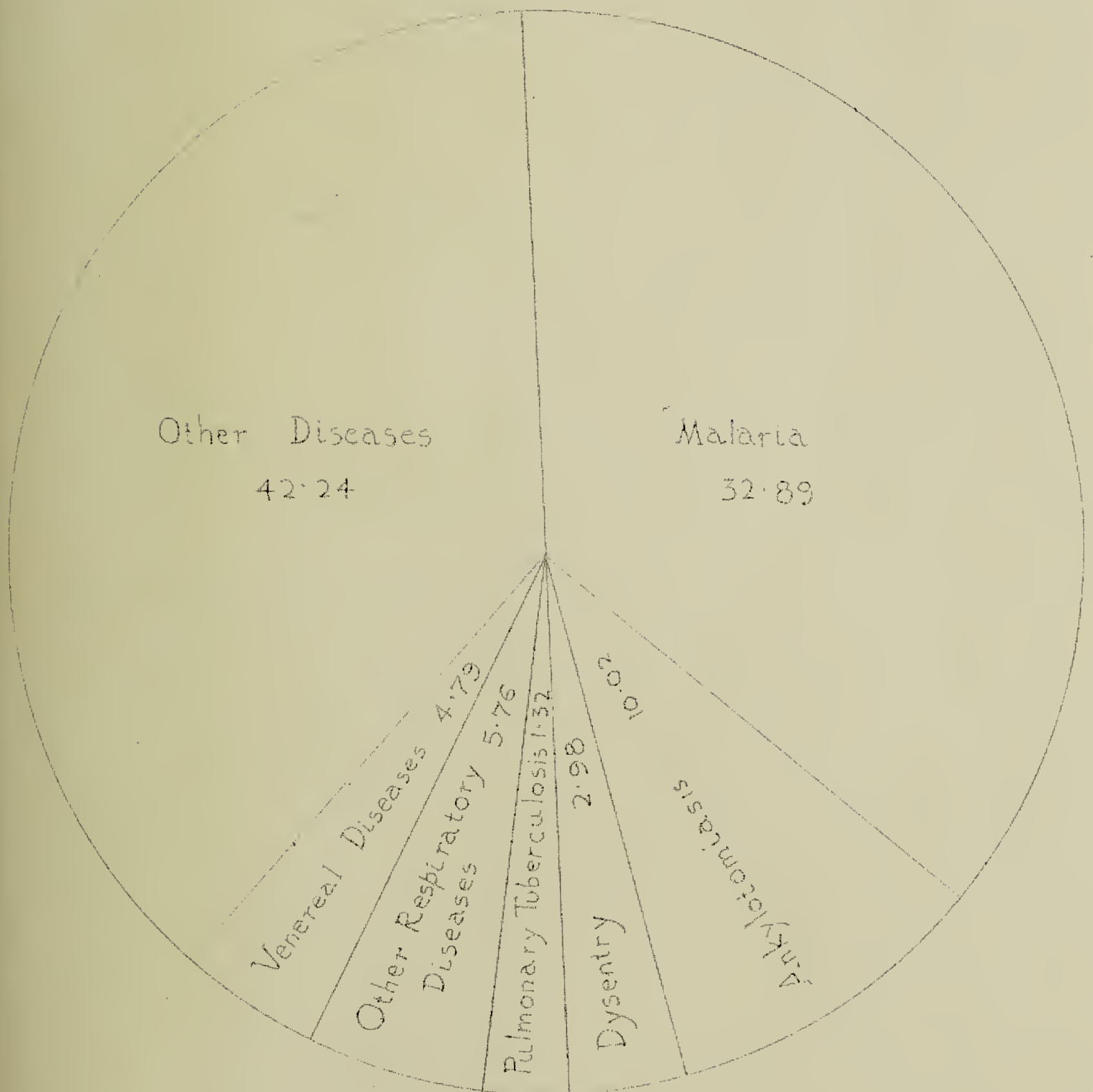
TOTAL DEATHS IN THE STATE 9,561.



(2)

PERCENTAGE OF CASES OF CERTAIN DISEASES TO
TOTAL TREATED IN HOSPITALS.

TOTAL CASES 19,121.



(3)

PERCENTAGE OF DEATHS OF CERTAIN DISEASES TO
TOTAL DEATHS IN HOSPITALS.

TOTAL DEATHS IN HOSPITALS 1,506.

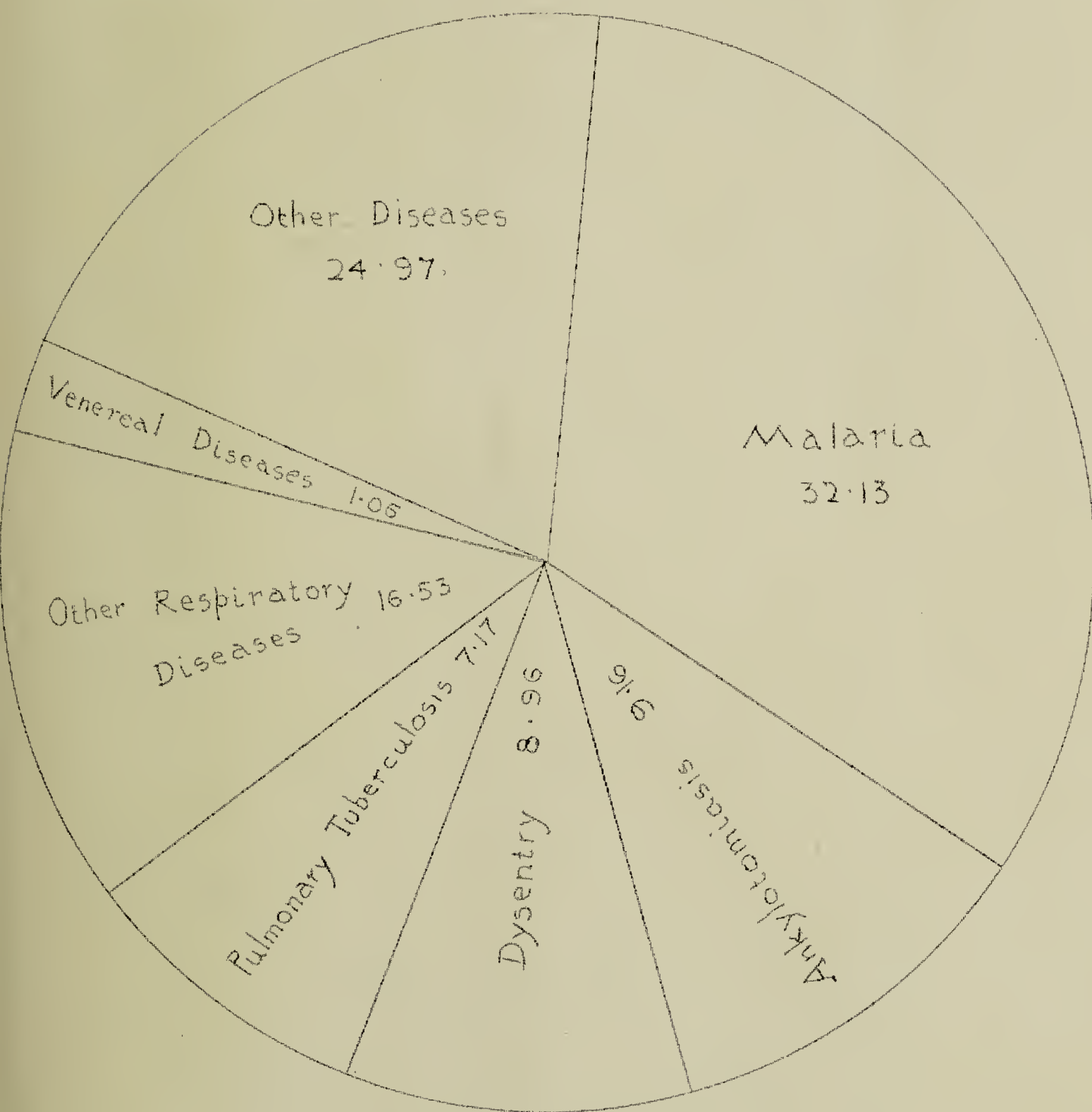
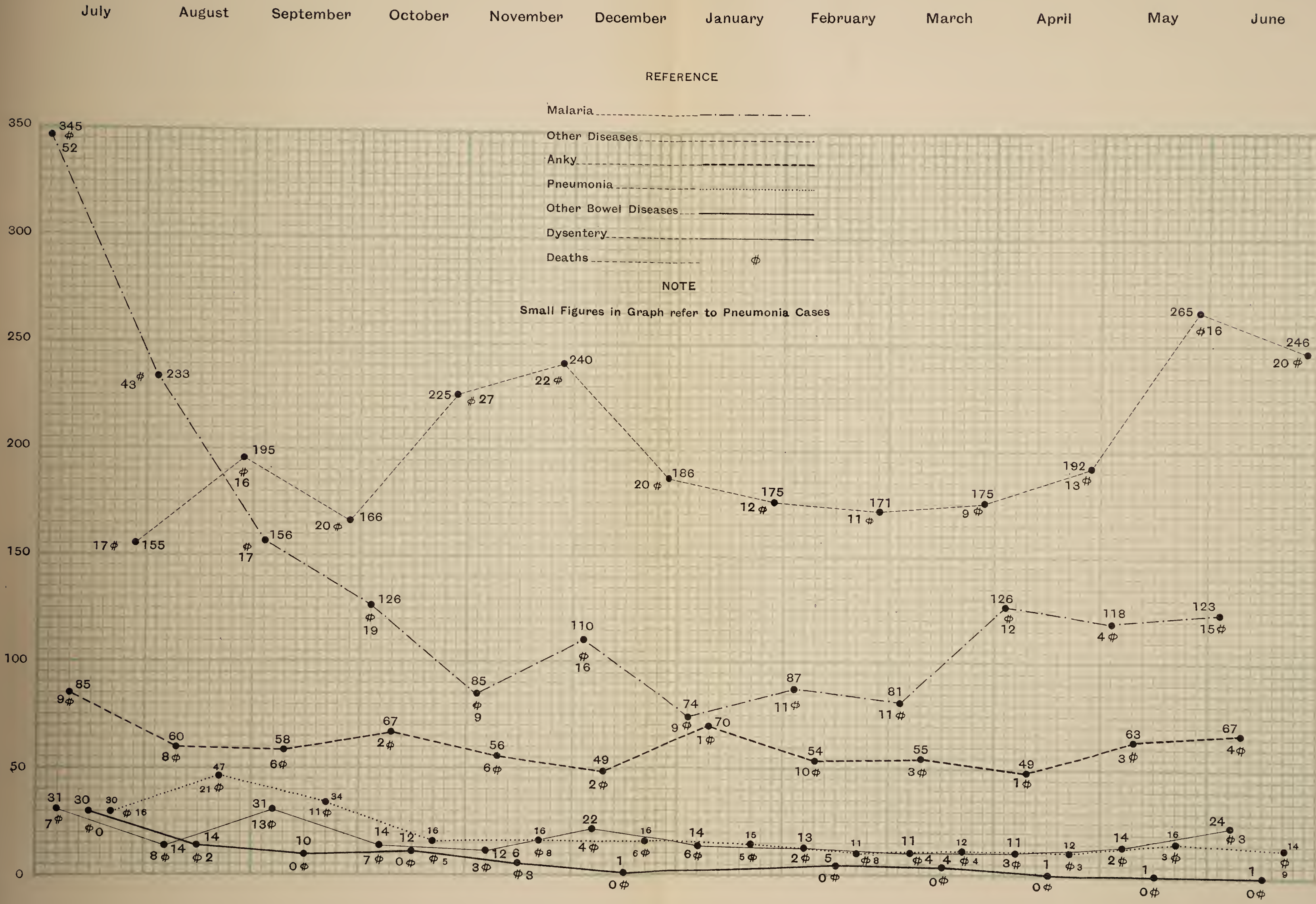
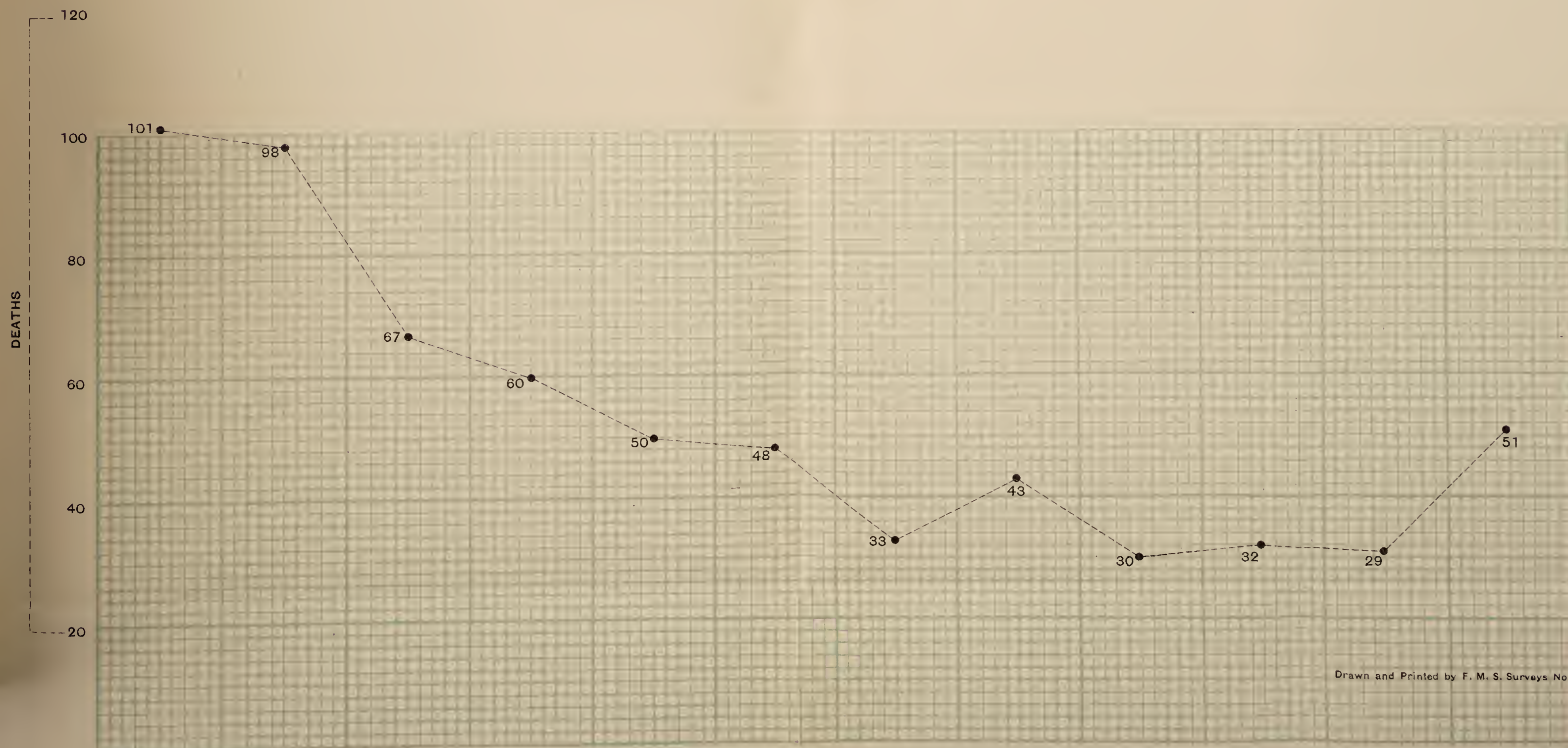
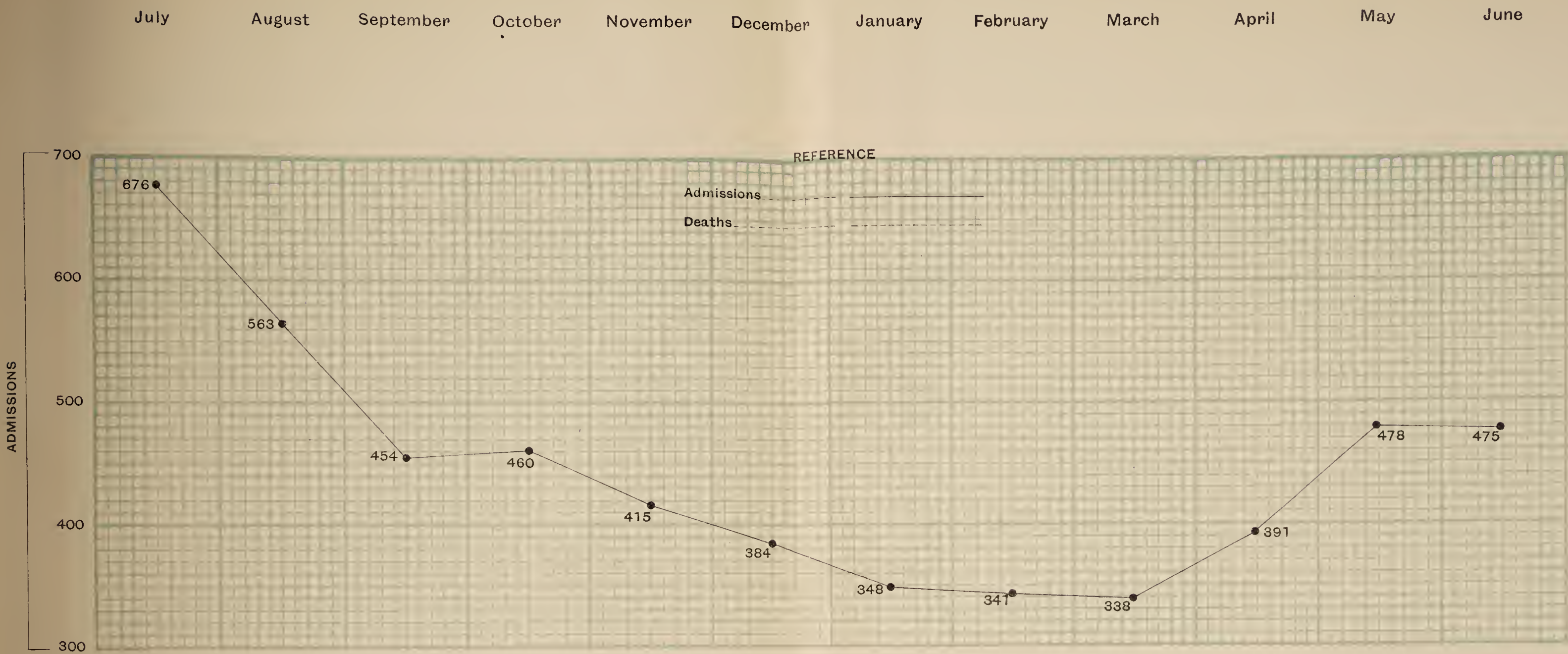


CHART SHOWING PREVAILING DISEASES AMONG ESTATES ADMISSIONS TO HOSPITAL WITH DEATHS,
FOR THE PERIOD JULY 1928 TO JUNE 1929.



GRAPH SHOWING TOTAL OF ESTATE LABOURERS AND DEPENDENTS ADMITTED INTO GOVERNMENT HOSPITAL, WITH DEATHS MONTHLY,
FOR THE PERIOD JULY 1928 TO JUNE 1929.





ANNUAL MEDICAL AND SANITARY REPORT, PERLIS

For the Year Ending 29th Zulhijjah, 1347 A.H.

(20th June, 1928 to 8th June, 1929).

I. ADMINISTRATION.

Staff.

The appointments in the Medical Department are as follows:—

The State Surgeon, Kedah, who visits once a month, and oftener if required.

1 Assistant Surgeon.

1 Dresser Grade I.

1 Dresser Grade III.

1 Vaccinator.

1 Dispensary Assistant.

1 Midwife.

The hospital was in charge of Assistant Surgeon, R. Sivasambandan, throughout the year.

Ordinances.

No ordinance affecting public health was passed during the year.

Financial.

The total revenue collected during the year was \$1,832.63 against \$1,621.71 in 1346 A.H.

The total expenditure was \$22,742.03 against \$23,585.45 in 1346 A.H.

II. PUBLIC HEALTH.

One case of chicken-pox occurred at Kangar and two cases of chicken-pox and one case of measles occurred at Kuala Perlis.

One case of fatal cerebrospinal meningitis, in an Indian, was admitted into hospital from Sanglang.

Two cases of enteric fever (with no mortality) were admitted into hospital during the year, of which one was a Ceylonese, from Arau, and the other was a Chinese Mining Cooly from Kaki Bukit. The source of infection could not be traced in any of these cases.

A case of acute gastroenteritis, in a P.W.D. cooly, who developed symptoms about 8 hours after the ingestion of impure water from a small pool at Arau, was admitted into the hospital, on the second day of the attack. He rallied from the original attack; but succumbed to an intercurrent pneumonia, on the sixteenth day after admission.

A few cases of influenza occurred during the first week of Rabialakhir (September).

As usual, fevers head the list of communicable diseases, and are responsible for nearly half the number of deaths in the state; most of them were malarial.

The number of cases admitted into hospital for fever shows an increase from 356 in 1346 to 439 in 1347. The mortality from malaria among hospital patients was lower than in 1346, the attacks were milder, and cerebral cases were fewer. The largest number were admitted during Moharram and Rejab (June and December). Almost all the Europeans in the state suffered from malaria at one time or other during the year.

Infantile convulsions come next in order to fevers; most of them were probably due to malaria. While the total number of births went up from 940 in 1346 to 1,315 in 1347, it is disheartening to note that the infantile mortality among infants up to one year old, rose from 94 in 1346, to 146 in 1347. Practically none of these cases sought medical aid. The mortality was greatest in Padang Malau and Chuping. The people in these places are still behind the times and have great faith in native treatment, and it takes time to persuade them to adopt a new treatment.

Lung complaints were also a frequent cause of death. There has been a slight increase in the number of such cases seeking admission into hospital during the present year.

The number of admissions for ankylostomiasis decreased from 83 in 1346 with 5 deaths, to 36 in 1347 with 4 deaths. The fall is only apparent, since most of such cases come in for fever and are returned as malaria. The incidence of ankylostomiasis among Estate Coolies was high.

Kaki Bukit, a mining village, has still the same evil reputation as a highly malarial place. It is hoped that steps will be taken shortly, to start dealing with this place.

Simpang Ampat and Sanglang, two more or less isolated places are visited about once in 6 months by travelling Dispensary. This of course is not often enough, but though it is hoped to make monthly visits, up to present it has been found impossible to do so on account of the difficulty of travelling.

The trenching of the night soil at Kangar is now more carefully supervised; the question of a better site for the trenching ground is engaging the attention of the Sanitary Board.

Rabies.

The first case of rabies for the year was reported on 15-1-47 and the last on 17-7-47. 8 persons and 2 goats were bitten in all; all the eight were sent to Alor Star for antirabic treatment; but two of them died a few weeks after treatment, from other diseases. Seven dogs were concerned in all. One was an unknown stray dog and not accounted for. The remaining six were killed on the spot. The brains of all these dogs were sent to the Research Institute, Kuala Lumpur through the State Veterinary Surgeon, Kedah. Five of the specimens were positive to rabies, and one was too far decomposed for examination. For further details vide appendix "I".

The health of the Government Servants was satisfactory. All were examined for signs of pulmonary tuberculosis and found to be free from physical signs of the disease.

Officials.

The following table gives the Health Statistics of Government Officials (including subordinates) in Perlis.

	Europeans	Asiatics
Total number of officials resident ..	2	371
Average number resident ..	2	371
Total number on sick list ..	2	63
Total number of days on sick list ..	18 days	314½
Average daily number on sick list ..	.05	.88
Percentage of sick to average number resident	100	17.00
Average number of days on sick leave for each patient ..	9 days	5
Average sick time to each resident ..	9 days	.85
Total number invalided ..	nil	nil
Percentage of invalidings to total resident ..	..	..
Total deaths ..	..	2
Percentage of deaths to total resident ..	..	.54
Percentage of deaths to average number resident ..	..	.54
Number of cases of sickness contracted away from residence ..	..	1

Schools.

Regular fortnightly visits were made to 13 schools by the travelling dispensary.

Of the Malay Vernacular Schools in Perlis (3 Girls' schools and 18 boys' schools) 11 boys' schools were visited by the Assistant Surgeon, with the following results.

			Percentage
Total pupils on register	..	1,702	..
Total seen	..	1,462	..
Enlarged Spleen	..	626	42.8
Pupils showing no vaccination marks	..	66	4.6
Yaws (Puru)	..	86	5.9

Beserie school had the greatest number of enlarged spleens: 65 out of 86.

Vaccination.

1,993 vaccinations were done against 2,864 during the previous year (216 $\frac{3}{4}$ tubes of lymph were used).

Malays	..	..	..	1,799
Chinese	..	..	..	87
Indians	..	..	..	3
Siamese	..	..	..	103
Eurasian	..	..	..	1
Total				1,993

The marked fall in the number of vaccinations is partly due to the fact that there were a large number of children too young to be vaccinated, and partly to the vaccinator going away on a month's leave.

From the reports received from the Penghulus, 60 cases were unsuccessful out of a total of 1,482.

\$798.08 was spent on vaccination, roughly 40.04 cents per case.

Vital Statistics.

(A) The population of Perlis for 1347 A.H. is estimated at 46,916, as against 46,400 for 1346 A.H.

The following is a comparative table for the last five years.

Year	Estimated Population	Births	Birth rate per mille	Deaths	Death rate per mille
1343	43,700	824	18.85	753	17.23
1344	44,600	809	18.13	767	17.19
1345	45,500	948	20.83	829	18.22
1346	46,400	940	24.26	722	15.56
1347	46,916	1,315	28.03	767	16.35

The excess of births over deaths was 548 in 1347.

(B) Population according to races with deaths and death rate.

Races	Approximate Population	Deaths	Death rate per mille
Eurasians	8	...	...
Europeans	6	...	...
Chinese	4,076	131	32.14
Malays	40,203	581	14.45
Indians	916	23	25.11
Siamese	1,707	32	18.75

(C) There were 146 deaths among infants up to one year old against 94 deaths during 1346 A.H. The rate being 111.03 per thousand births against 100.00 in 1346.

Infantile death rate for the last 5 years was.

Year			Death	Rate per mille	Corrected rate	Age one year and under
1343	...	...	113	137.13	...	...
1344	...	...	105	129.79	133.59	...
1345	...	...	129	136.08	140.22	...
1346	...	...	94	100.00	103.75	...
1347	...	...	146	111.03	113.80	...

The Infantile Death rate per thousand births, among the principal nationalities was:—

			Malays	Chinese	Indians	Siamese
Crude	...	...	105.50	152.00	142.90	125.00
Corrected	...	...	107.89	157.03	157.90	128.21

(D) Births according to nationality.

Nationality.					Total
Europeans	..	..	..	..	..
Eurasians	..	..	..	..	1
Chinese	..	..	..	..	125
Malays	..	..	..	..	1,128
Indians	..	..	..	..	21
Siamese	..	..	..	..	40
Total					1,315
Males	..	..	..	..	705
Females	..	..	..	..	610
Total					1,315

(E) Still births according to Sex and Nationality.

Nationality				Males	Females	Total
Europeans	...	...	...	...	...	...
Eurasians	...	...	...	...	...	...
Chinese	...	...	...	2	2	4
Malays	...	...	...	20	5	25
Indians	...	...	...	...	2	2
Siamese	...	...	...	1	...	1
Total				23	9	32

(F) Distribution of deaths according to Nationality and Diseases.

Diseases	Europeans	Eurasians	Malays	Chinese	Indians	Siamese	Total
Fevers	275	64	5	15	359
Convulsions infantile	91	12	2	2	107
Old age	58	7	...	...	65
Resp. Diseases	56	26	11	11	104
Oedema (Basal)	37	8	...	2	47
Diarrhoea, dysentery, etc.	17	5	...	1	23
Death after abortion or labour	17	...	2	1	20
Injuries and accidents	6	2	1	...	9
Other causes	24	7	2	...	33
Total	581	131	23	32	767

Injuries and accidents included one case of infanticide, two cases of fall from a height, two cases of motor accident, one case of carbide explosion, one case of suicidal cut throat, and one case of fatal wound due to weapon besides one case of burns.

(G) Deaths according to sex and nationality.

Nationality	Males	Females	Total
Malays ...	295	286	581
Chinese ...	107	24	131
Indians ...	16	7	23
Siamese ...	14	18	32
Total ...	432	335	767

(H) Incidence of deaths according to ages and nationality.

Age	Malays	Chinese	Indians	Siamese	Total
1 year and under ...	119	19	3	5	146
5 years and under ...	55	5	1	4	65
15 do ...	43	3	1	2	49
25 do ...	45	10	3	3	61
35 do ...	61	17	9	2	89
45 do ...	58	26	4	4	92
50 do ...	40	12	2	2	56
55 do ...	10	14	...	...	24
65 do ...	57	12	...	7	76
75 do ...	39	6	...	2	47
100 do ...	51	7	...	1	59
Above 100 years ...	3	...	...	...	3
Total ...	581	131	23	32	767

209 deaths occurred of persons over 50 years of age.

III. PORT HEALTH WORK ETC.

All vessels arriving from Siamese ports were inspected during the year owing to Cholera in Siam.

IV. HOSPITALS AND DISPENSARIES.

General Hospital, Kangar.

The number of indoor cases treated during the year was 1,104. There were 57 deaths, being a percentage of 5.16 to total treated. Excluding 13 deaths which occurred within 48 hours of admission, the death rate was 3.98.

The daily average number of inpatients was 43.76. The largest number of inpatients on one day was 65 on 29-1-47 and 15-2-47.

The figures for 1346 were:— total cases 1,087; percentage of deaths 6.25; percentage of deaths excluding deaths within 48 hours of admission 3.8 percent. Daily average 46.75.

Indoor patients according to nationalities.

Nationality			No. treated	Deaths	Percentage of deaths	Deaths within 24 hours
Chinese	...	...	458	37	8.08	8
Indians	...	...	441	16	3.63	...
Javanese	...	...	4	...	...	...
Malays	...	...	187	4	2.14	1
Siamese	...	...	14	...	...	...
Total			1,104	57	5.16	9

The total number of Malays treated in the hospital was 187 or slightly more than 1/6 of the total number of admissions.

Admissions from Estates and Mines.

The total number of patients from Estates and Mines was 218 with 14 deaths or a percentage of 6.42 against 170 cases with 13 deaths (7.6 percent) during the previous year.

Nationality			Remaining	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Percentage of deaths	Death within 24 hours
Indians	...	...	2	109	111	101	2	...	4	4	3.60	...
Chinese	...	...	4	103	107	87	1	...	10	9	9.35	4

The deaths included 6 cases of Pneumonia, 1 case of bronchopneumonia, 2 cases of malaria, one case of pericarditis, two cases of myocarditis, one case of cerebral haemorrhage, and one case of Hodgkins' disease.

Prevailing Diseases.

Diseases			1345			1346			1347			Deaths within 24 hours
			Cases	Deaths	Percentage	Cases	Deaths	Percentage	Cases	Deaths	Percentage	
Malaria	...	...	443	13	2.93	356	14	3.93	439	10	2.28	3
Dysentery Amoebic	...	...	27	6	22.22	27	3	11.11	21	3	14.29	...
Dysentery Bacil.	...	...	5	...	...	1	...	...	...	...	...	...
Ankylostomiasis	...	...	34	...	...	83	5	6.02	36	4	11.11	...
Syphilis	...	...	25	...	...	28	...	...	20	...	...	...
Pulmonary Tuber.	...	...	29	6	20.69	30	10	33.33	28	9	32.14	...
Other Lung Complaints	...	...	76	16	21.05	56	9	16.07	68	17	25.00	2
Ulcers	...	...	90	...	...	49	...	...	62	...	...	...
Injuries	...	...	43	2	4.65	51	2	4.00	90	2	2.22	2
Other Diseases	...	...	235	13	5.53	406	25	6.15	340	12	3.53	2
Total			1,007	56	5.6	1,087	68	6.2	1,104	57	5.16	9

There was an increase in the number of cases admitted for malaria, respiratory diseases, ulcers and injuries; a slight fall in the number of cases admitted for dysentery and ankylostomiasis.

The fall in the number of cases for ankylostomiasis is only apparent, since most of such cases come in for fever and are returned as malaria.

Infectious Diseases with Deaths.

Diseases	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Percentage of deaths	Deaths within 24 hours
Cerebrospinal ...	...	1	...	...	...	...	...	...	...	...
Meningitis ...	...	...	1	...	...	...	1	...	100·00	...
Chicken Pox ...	...	1	1	1	...	...	...	...	...	...
Dysentery ...	1	20	21	18	...	...	3	...	14·30	...
Enteric Fever ...	...	2	2	1	...	...	...	1	...	...
Influenza ...	...	6	6	6	...	...	...	...	...	...
Pneumonia ...	...	22	22	7	...	...	15	...	68·18	2
Tuberculosis-Phthisis ...	2	26	28	19	...	...	9	...	32·14	...
Total ...	3	78	81	52	...	...	28	1	34·57	2

The death rate from Pneumonia is deplorably high; since most of the cases come up late in the course of the disease, they succumb inspite of treatment.

Surgical Operations.

2 Major and 1,682 minor operations were performed.

Laboratory Work.

Blood films were examined in 2,007 instances with the following results.

Malaria B.T.	..	..	..	..	326
Malaria M.T.	..	..	..	..	295
Malaria Quartan	..	..	..	..	22
Malaria Mixed	..	..	..	..	140
Negative	..	..	..	..	1,224
Total	..	..	..	..	2,007

Other specimens examined totalled 2,963 (for more details vide appendix).

Post Mortem Examination.

Medicolegal	..	..	..	..	6
Pathological	..	..	..	..	27
Total	..	..	..	..	33

Out-Door Department.

Number of new cases	..	..	..	6,638
Repetitions	..	..	..	1,689

The nationalities who received treatment were:—

Chinese	..	..	..	1,102
Indians	..	..	..	1,450
Javanese	..	..	..	2
Malays	..	..	..	3,891
Siamese	..	..	..	60
Europeans	..	..	..	35
Eurasians	..	..	..	83
Japanese	..	..	..	9
Turks	..	..	..	6
Total	..	..	..	6,638

In addition to those treated at the hospital dispensary, 200 cases were treated in the Kangar Gaol.

Neosalvarsan injections numbered 3,370, of which 2,233 were for yaws and 1,137 for other conditions. 20 of these injections were given to indoor patients for yaws, and the rest to out-door cases.

The travelling dispensary did most useful work, and attended to 950 cases excluding cooly lines, schools, and police stations. It is much appreciated by the working classes.

Two mental cases (both females, one Malay and one Chinese) were transferred to the Central Mental Hospital, Tanjong Rambutan in 1347 A.H. There were 15 Perlis patients (11 males and 4 females) in that institution at the end of the year. One Chinese mental case was repatriated to China.

There were 3 Perlis patients (all males) in the Leper Asylum at Pulau Jerejak at the end of the year.

Three South Indians were repatriated to India through the Labour Office at Penang. During the year under review 8 cases were transferred to General Hospital, Alor Star as follows:—

Melancholia—suspected cerebral abscess—one case.

One case of Duodenal ulcer.

One case of Ruptured appendix—Peritonitis.

One case of Haemorrhoids.

One case of abscess of Liver.

One case of Chronic abscess-loin.

One case of Compound fracture skull.

One case of wound skull-compound fracture.

Also two prisoners (one suffering from subacute appendix and one from inguinal hernia) were transferred to Alor Star Hospital, and a few out-door surgical cases were advised to go there for treatment.

Buildings.

The hospital compound was fenced.

A small part of the Dispensary building was closed off to form a Venereal Disease Clinic, but up to the present has not been much attended.

The provision of the family hut for the use of Malay women has been useful in inducing more Malays to stay at the hospital for treatment, though the response has not been as brisk as expected.

The free services of the Malay Midwife have not been taken advantage of by people; she was called out to attend only 2 cases during the year.

APPENDICES.

- A. Return of Sick Indoor patients.
- B. Return of Laboratory work.
- C. Return of deaths in Perlis State, according to mukims and Nationality.
- D. Return of deaths in Perlis State, according to mukims and diseases.
- E. Return of Infantile Mortality, according to mukims and Nationality.
- F. Return of Births and Still births according to mukims and Nationality.
- G. Return shewing distribution of births, deaths, infant mortality and still births according to mukims.
- H. Return of Rainfall and Meteorology.
- I. Return of persons bitten by rabid dogs.

APPENDIX—A.

ANNUAL RETURN OF SICK.

*Return of Sick of the Indoor Patients of the General Hospital, Perlis**For the year ending 29th Zul-Hijjah, 1347 A. H.*

Specific Diseases			Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
INFECTIVE DISEASES.											
Cerebrospinal Meningitis	...	...	...	1	1	...	...	...	1	...	
Chicken Pox	...	...	...	1	1	1	...	...	...	...
Dysentery	...	...	1	20	21	18	...	...	3	...	
Enteric Fever	...	...	...	2	2	1	...	...	...	1	
Gonorrhœa	...	...	3	15	18	18	...	...	...	...
Gonorrhœal Pheumatism	...	...	...	7	7	6	...	...	...	1	
Gonorrhœal Conjunctivitis	...	...	...	3	3	3	...	...	...	...
Influenza	...	...	...	6	6	6	...	...	...	...
Leprosy	...	...	...	1	1	1	...	...	...	...
MALARIA.											
(a) Benign Tertian	...	...	6	156	162	159	...	...	1	2	
(b) Quartan	...	...	...	10	10	9	...	...	1	...	
(c) Malignant Tertian	...	...	8	149	157	143	...	...	6	8	
(d) Mixed Infection	...	...	3	87	90	84	...	1	2	3	
(e) Type undiagnosed	...	...	1	19	20	20	...	...	...	...
Pneumonia	...	...	...	22	22	7	...	...	15	...	
Pyrexia of uncertain origin...	...	...	...	3	3	3	...	...	...	...
SYPHILIS.											
Primary	...	...	...	6	6	66	...	...	...	...
Secondary	...	...	1	2	3	3	...	...	...	...
Tertiary	...	...	1	9	10	8	...	...	...	2	
Inherited	...	...	...	1	1	1	...	...	...	...
TUBERCULOSIS.											
Phthisis	...	...	2	26	28	19	...	...	9	...	
Yaws	...	...	...	6	6	6	...	...	...	...
Infective Granuloma	...	...	...	1	1	...	...	...	...	1	
INTOXICATIONS.											
Opium Intoxication	...	...	...	1	1	...	...	...	...	1	
GENERAL DISEASES NOT INCLUDED IN THE PRECEDING GROUPS.											
Beriberi	...	...	...	1	1	1	...	...	...	...
Lymphadenoma	...	...	...	3	3	2	...	...	1	...	
CERTAIN MORBID CONDITIONS INCIDENT TO VARIOUS PARTS.											
New growths: Non-malignant...	...	...	...	1	1	1	...	...	...	...
Cyst	...	...	1	2	3	3	...	...	...	...

Specific Diseases			Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
DISEASES OF THE NERVOUS SYSTEM.											
Facial paralysis	...	...	1	...	1	1	...	...	...	...
Neuritis Peripheral	...	...	...	1	1	1	...	...	...	...
SPINAL CORD AND MEMBRANES.											
Myelitis	...	...	...	1	1	1	...	...	...	...
NERVOUS DISORDERS.											
Paraplegia	...	..	...	1	1	1	...	...	...	...
Hemiplegia	...	...	...	2	2	1	...	...	...	1	
MENTAL DISEASES.											
Mania	...	...	3	8	11	6	2	1	...	2	To Central Mental Hospital T. Rambutan To General Hospital Alor Star.
Melancholia	...	...	2	4	6	4	1	...	...	1	
Mental case under observation	...	...	1	1	2	2	...	...	...	...
DISEASES OF THE EYE.											
Conjunctivitis	...	...	2	1	3	3	...	...	...	...
Trachoma	...	...	...	1	1	1	...	...	...	...
Keratitis	...	...	...	1	1	1	...	...	...	...
Ulcer of cornea	...	...	...	1	1	...	...	...	...	1	
Optic atrophy	...	...	...	1	1	1	...	...	...	...
DISEASES OF THE EAR.											
Inflammation	...	...	...	2	2	2	...	...	...	...
DISEASES OF THE CIRCULATORY SYSTEM											
Pericarditis	...	...	...	2	2	1	...	...	1	...	
Valvular disease	...	...	...	2	2	2	...	...	...	...
Myocarditis	...	...	...	4	4	1	...	...	3	...	
DISEASES OF THE RESPIRATORY SYSTEM.											
Asthma	...	...	...	15	15	13	...	...	...	2	
Bronchitis	...	...	...	10	10	10	...	...	...	...
Bronchiectasis	...	...	...	1	1	1	...	...	...	...
Bronchopneumonia	...	...	...	8	8	5	...	...	1	2	
Pleurisy	...	...	1	9	10	10	...	...	...	...
Empyema	...	...	...	2	2	1	...	...	1	...	
DISEASES OF THE DIGESTIVE SYSTEM.											
Stomatitis	...	...	...	1	1	1	...	...	...	..
Gangrene of mouth	...	...	...	1	1	...	...	...	1	...	
Inflammation of Pharynx	...	...	...	4	4	4	...	...	...	...
Gastritis	...	...	...	1	1	1	...	...	...	...
Enteritis	...	...	...	12	12	12	...	...	...	...

Specific Diseases			Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
DISEASES OF THE DIGESTIVE SYSTEM.— <i>contd.</i>											
Appendicitis	1	4	5	5	To General Hospital Alor Star.
Duodenal ulcer	...	...	...	5	5	4	1	...	...	...
Sprue	...	...	...	1	1	1	...	...	...	...
Hernia	...	...	...	2	2	2	...	...	...	...
Intestinal obstruction	...	...	...	1	1	1	...	...	...	...
Colic	15	15	15	do
Hæmorrhoids	...	...	...	6	6	5	1	...	...	...
Hepatitis	2	2	2	do
Abscess of liver	...	...	...	1	1	...	1	...	...	...
Cirrhosis of liver	3	3	3	do
Jaundice	...	...	...	3	3	3	...	...	...	...
Peritonitis acute abdomen	do
Ruptured appendix	...	...	...	1	1	...	1	...	...	...
DISEASES OF THE LYMPHATIC SYSTEM.											
Bubo	1	3	4	4	
Suppuration of glands	...	...	...	1	1	1	...	...	...	...
Lymphangitis	...	...	...	2	2	2	...	...	...	...
Lymphadenitis	...	...	...	5	5	5	...	...	...	...
DISEASES OF THE URINARY SYSTEM.											
Cyclical Albuminuria	1	1	1	1
Bright's disease	...	...	...	8	8	5	...	...	2	...
Cystitis	...	...	...	2	2	2	...	...	...	...
Calculus-vesical	...	...	...	1	1	1	...	...	...	...
DISEASES OF THE GENERATIVE MALE SYSTEM.											
Balanitis	1	1	1	
Epididymitis	...	...	...	1	1	1	...	...	...	...
Phraphimosis	...	...	...	2	2	2	...	...	...	...
Scrotum Abscess	...	...	...	2	2	2	...	...	...	...
FEMALE.											
Pustubes	1	1	1	
AFFECTIONS CONNECTED WITH PREGNANCY AND PARTURITION.											
Pregnancy waiting case	1	1	1	2
Eclampsia-Antepartum	...	...	...	1	1	1	...	...	...	...
Normal labour	...	...	...	4	4	4	...	...	...	...
Retention of Placenta	...	...	...	1	1	1	...	...	...	...
Puerperal Septicæmia	...	...	...	2	2	...	...	...	...	...
DISEASES OF THE ORGANS OF LOCOMOTION.											
Necrosis of bones	2	2	1	1	1
Arthritis	...	...	...	5	5	4	...	...	...	...
Synovitis	...	...	...	8	8	8	...	...	...	...
Ostemyelitis	...	...	...	4	4	3	...	...	...	...

Specific Diseases			Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
DISEASES OF THE CONNECTIVE TISSUE.											
Cellulitis	1	12	13	10	1	2	To General Hospital Alor Star.
Abscess	...	...	1	24	25	21	1	...	...	3
Sinus abdomen P.O.	...	...	...	1	1	1	...	...	...	...
DISEASES OF THE SKIN.											
Arsenical dermatitis	1	1	1	
Boils	...	...	1	3	4	3	...	...	...	1
Eczema	...	...	...	6	6	6	...	...	...	...
Prickly heat	...	...	...	1	1	1	...	...	...	...
Ulcer	...	...	8	54	62	57	...	...	...	5
INJURIES.											
Dogbite	1	1	1	To General Hospital Alor Star.
Burns	...	...	...	7	7	7	...	...	...	...
Local—											
(a) Wounds	...	...	4	64	68	62	1	...	...	5
(b) Contusion	...	...	...	3	3	3	...	...	...	...
(c) Sprains	...	...	...	4	4	...	...	...	...	...
(d) Fracture simple	5	5	4	1	...	do
(e) Fracture compound	...	...	...	2	2	4	1	...	1	...
PARASITES.											
Tænia saginata	1	1	1	
Ascariasis	...	...	...	23	23	23	...	...	...	...
Ankylostomiasis	...	...	...	36	36	32	...	...	4	...
Ascariasis & Ankylostomiasis	...	...	...	14	14	14	...	...	...	...
Scabies	...	...	1	3	4	4	...	...	...	...
Ringworm	...	...	...	2	2	2	...	...	...	...
Under observation	...	...	...	9	9	8	...	...	...	1
For sake of mother, child etc.	...	...	...	13	13	13	...	...	...	...
Total	...	...	55	1,049	1,104	984	10	2	57	51
Nationalities.											
Chinese	22	436	458	387	3	1	37	30	
Indians	...	...	24	417	441	413	2	...	16	10
Javanese	...	...	1	3	4	3	...	...	...	1
Malays	...	...	8	179	187	159	5	1	4	8
Siamese	...	...	...	14	14	12	...	...	...	2
Total	55	1,049	1,104	984	10	2	57	51	

Percentage of deaths to total treated 5.16.

Total number of cases which proved within 48 hours of admission 13.

Percentage of deaths to total treated excluding deaths occurring within 48 hours of admission 3.91.

Total number of cases which proved fatal within 24 hours of admission 9 cases.

APPENDIX—B.

Laboratory Work, 1347 A.H.

Nos.	Specimen			RESULT			Numbers Examined	Total
1	Blood	Malaria B.T.	326	2,007
				Malaria M.T.	...	...	295
				Malaria Quartan	...	...	22
				Malaria Mixed	...	...	140
				Negative	...	...	1,224
2	Pus	Gonococcus	43	91
				Negative	...	...	48
3	Eye Smear	Diplo Bacillus (Morax and Axenfeld)	2	26
				Gonococcus	...	...	9
				Pneumo cocci	...	...	5
				Negative	...	...	10
4	Nasal Smear	Lepra Bacillus	1	11
				Negative	...	...	10
5	Cerebrospinal fluid	Pneumococci	1	I
6	Sputum	Tubercle Bacillus	28	192
				Pneumococci	...	...	24
				Pneumo-Strept-Staphy	...	...	25
				Strepto-Staphylo	...	...	18
				Negative	...	...	97
7	Stool	Amœba Hystolytica	22	1,693
				Amœbic Cysts	...	...	16
				Ankylostome	...	...	396
				Anky-Ascaris	...	...	323
				Anky-Whipworm	...	...	48
				Ankylo-Ascaris-Whipworm	...	...	112
				Ascaris	...	...	185
				Ascaris-Whipworm	...	...	39
				Whipworm	...	...	81
				Oxyuris	...	...	2
				Tænia Saginata	...	...	2
				Negative	...	...	467
8	Urine	Albumen	198	949
				Bile	...	...	11
				Sugar	...	...	2
				Negative	...	..	738

Total number of specimens examined 4,970.

APPENDIX—C.

Deaths in Perlis for 1347 A.H.

767 deaths were recorded in 1347.

No.	Mukim	Malays		Chinese		Indians		Siamese		Total		Total	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1	Abi ...	15	14	1	...	...	...	...	...	16	14	30	...
2	Arau ...	42	47	10	3	2	1	8	13	62	64	126	...
3	Bintong ...	18	17	...	...	...	...	...	...	18	17	35	...
4	Chuping ...	32	27	...	1	...	..	4	5	36	33	69	...
5	Kuala Perlis ...	10	13	2	3	...	...	...	...	12	16	28	...
6	Oran ...	14	17	1	1	...	...	...	...	15	18	33	...
7	Padang Malau ...	34	35	32	5	...	1	1	...	67	41	108	...
8	Paya ...	75	56	45	7	14	5	1	...	135	68	203	...
9	Sanglang ...	13	14	12	...	...	...	...	...	25	14	39	...
10	Utan Aji ...	14	11	...	2	...	...	...	...	14	13	27	...
11	Utan Gelam ...	27	32	4	1	...	...	...	...	31	33	64	...
	Name of place not mentioned ...	1	3	...	1	...	...	...	...	1	4	5	...
	Total ...	295	286	107	24	16	7	14	18	432	335	767	...

APPENDIX—D.

Distribution of deaths according to Mukims and Diseases.

Mukims			Fever	Respiratory Diseases	Diarrhoea, Dysentery. etc.	Oedema (Basal)	Old Age	Infantile Convulsions	Deaths after abortion or child birth	Injuries and accidents	Other Causes	Total
Abi	...	...	28	...	...	1	...	1	...	...	...	30
Arau	...	...	47	15	5	10	14	29	3	...	3	126
Bintong	...	...	19	4	1	2	1	4	1	2	1	35
Chuping	...	...	37	8	1	2	5	9	3	...	4	69
Kuala Perlis	...	...	9	1	...	...	7	10	...	...	1	28
Oran	...	...	11	2	...	6	7	7	...	...	...	33
Padang Malau	...	...	55	11	9	7	6	15	1	1	3	108
Paya	...	...	91	47	4	10	14	13	4	4	16	203
Sanglang	...	...	14	5	1	3	3	10	1	1	1	39
Utan Aji	...	...	13	4	...	5	3	1	...	...	1	27
Utan Gelam	...	...	31	6	2	1	5	8	7	1	3	64
Place not recorded	...	...	4	1	...	...	...	...	...	...	...	5
Total			359	104	23	47	65	107	20	9	33	767

APPENDIX—E.

Infantile mortality in Perlis for the year 1347 A.H.

Mukims			Malays		Chinese		Indians		Siamese		Total
			M.	F.	M.	F.	M.	F.	M.	F.	
Abi	...	...	1	2	...	...	...	...	...	...	3
Arau	...	...	18	9	3	...	2	...	...	1	33
Bintong	...	...	4	3	...	...	...	...	...	...	7
Chuping	...	...	8	5	...	1	...	...	...	4	18
Kuala Perlis	...	...	2	5	...	...	...	...	...	...	7
Oran	...	...	4	3	...	1	...	...	...	...	8
Padang Malau	...	...	12	7	4	1	...	...	...	...	24
Paya	...	...	10	11	1	3	...	1	...	...	26
Sanglang	...	...	3	5	3	...	...	...	...	...	11
Utan Aji	...	...	1	1	...	1	...	...	...	...	3
Utan Gelam	...	...	3	2	...	1	...	...	...	...	6
Total		...	66	53	11	8	2	1	...	5	146

Males	...	...	...	79
Females	...	...	...	67
Total			...	146

APPENDIX—F.

Births and Still Births in Perlis in 1347 A.H.

1,283 births and 32 still births were recorded in 1347.

Mukims			BIRTHS						STILL BIRTHS				
			Malays	Chinese	Indians	Siamese	Others	Total	Malays	Chinese	Indians	Siamese	Total
Abi	...	...	39	...	...	...	...	39	1	...	...	...	1
Arau	...	...	202	19	6	19	...	246	6	1	...	...	7
Bintong	...	...	52	...	...	1	...	53	...	...	...	...	...
Chuping	...	...	58	3	...	12	...	73	...	...	...	...	...
Kuala Perlis	...	...	83	7	...	1	...	91	6	...	...	...	6
Oran	...	...	57	2	2	...	...	61	...	...	...	...	...
Padang Malau	...	...	58	21	4	4	...	87	1	...	...	...	1
Paya	...	...	158	23	7	1	1	190	5	...	2	...	7
Sanglang	...	...	95	28	...	1	...	124	3	2	...	1	6
Utan Aji	...	...	27	1	...	...	...	28	1	...	...	...	1
Utan Gelam	...	...	274	17	...	...	...	291	2	1	2	...	...
Total	...	...	1,103	121	19	39	1	1,283	25	4	2	1	32

Males ... 682 Males ... 23

Females ... 601 Females ... 9

Total ... 1,283 Total ... 32

Total Births ... 1,283

Total Still Births ... 32

Total ... 1,315

APPENDIX—G.

Distribution of births, infantile mortality and total deaths according to Mukims.

Mukims			Total Deaths	Births (excludes Still- births)	Infantile mortality	Still-births
Abi	...	...	30	39	3	1
Arau	...	...	126	246	33	7
Bintong	...	...	35	53	7	...
Chuping	...	...	69	73	18	...
Kuala Perlis	...	...	28	91	7	6
Oran	...	...	33	61	8	...
Padang Malau	...	...	108	87	24	1
Paya	...	...	203	190	26	7
Sanglang	...	...	39	124	11	6
Utan Aji	...	...	27	28	3	1
Utan Gelam	...	...	64	2,911	6	3
Name of place not recorded .			5	...	...	...
Total ...			767	1,283	146	32

APPENDIX—H.

METEOROLOGICAL RETURN OF HOSPITAL, PERLIS,

from 1st August, 1928 A.D. to 31st May, 1929 A.D.

MONTHS, 1928-1929		TEMPERATURE				HYGROMETER				Total Rainfall	Greatest Rainfall during 24 hours	Highest Shade Temperature=96.00 on 2-4-29, 14-4-29, 15-4-29 and 4-5-29. Lowest Shade Temperature=64.00 on 14-1-29.
		Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
August	81.8	88.6	73.5	15.1	77.8	.871	75.1	80.4	5.90	1.59
September	81.1	87.0	73.3	13.7	78.0	.894	75.9	84.3	12.64	2.10
October	81.4	86.7	73.2	13.5	77.2	.848	74.3	79.2	10.12	1.61
November	81.1	89.1	72.1	17.0	72.6	.657	66.8	61.9	5.12	1.35
December	80.6	87.3	71.8	15.5	75.9	.804	72.7	77.0	2.47	.81
January	81.5	89.6	70.2	19.4	73.9	.704	68.8	65.5	.39	.35
February	81.9	90.8	72.6	18.2	75.0	.744	70.4	68.4	4.99	2.95
March	82.4	92.1	72.1	20.0	76.1	.785	72.0	70.9	10.50	3.85
April	84.0	93.0	73.3	19.7	78.5	.865	74.9	74.2	4.92	1.03
May	83.9	91.3	73.9	17.4	79.2	.900	76.1	77.5	6.99	1.62

APPENDIX—I.

Rabies in Perlis in 1947.

No.	Place	No. of Persons bitten	Date of bite	Dog alive or killed	Results of dog's brain sent to K. L.	REMARKS
1	Mata Ayer	...	15-1-47	Killed on the spot	Positive	The patient died 1½ months after treatment.
2	Paya	...	15-2-47	do.	do.	
3	Kangar	...	15-3-47	Shot on the spot	do.	The goat was killed and buried deep.
4	Arau	...	22-4-47	Killed on the spot	do.	do.
5	Arau	...	30-1-47	do.	do.	
6	Pangkalan Assam	...	25-3-47	Dog unknown	...	Died one month after treatment.
7	Arau (Guring)	...	17-7-47	Killed on the spot	Brain decomposed	

All the eight persons were sent to G. Hospital, Alor Star for necessary antirabic treatment.

